

**EXPERIENCE WITH PRESCRIPTIVE AUTHORITY SERVICES AMONG
COMMUNITY PHARMACISTS IN SASKATCHEWAN**

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ABSTRACT

In recent years, a significant change in the pharmacist's scope of practice is the expansion of prescriptive authority (PA). In Saskatchewan, pharmacists adopted an interdependent prescribing model to support interprofessional collaboration, public safety through the optimal use of drug therapy, and the optimization of pharmacy competencies. In acquiring this new prescriptive authority, the community pharmacist also assumes new responsibilities and obligations, as well as transforming their relationships with patients and physicians.

The purpose of this research is to assess rates of adoption by pharmacists of PA (Level 1 and Minor Ailments Prescribing) within community pharmacy practice in Saskatchewan. To gain a better understanding of how pharmacists are responding to new and evolving models of practice, this study proposes to measure their experiences with PA services and how it is affected by aspects of their professional practice.

To investigate the study's research questions, a cross-sectional study using a mail-in questionnaire with an online option was initiated. All registered community pharmacists in Saskatchewan (998) were asked to participate in the study. Of the 998 distributed questionnaires, 501 were returned back by the respondents yielding a response rate of 51.3 percent.

The results disclose that a vast majority of respondents agreed or strongly agreed that they were confident in their ability to provide Level 1 (94%) and Minor Ailment (75%) prescribing. Respondents indicated that 74.2 percent of the time they actually provide Level 1 (L1) prescribing services to their patients and slightly more than half (52.5%) of the time provided Minor Ailment (MA) prescribing services. The majority of respondents (81.4 %) indicated that on average it took twenty minutes or less to provide MA prescribing service to their patients.

Most pharmacist respondents strongly supported the statement that the pharmacies they worked at consistently provided Prescriptive Authority services (L1- 90% Strongly Agreed or Agreed, MA- 52.9% Strongly Agreed or Agreed) and that they get full support from managers (L1- 95.6% Strongly Agreed or Agreed, MA- 88% Strongly Agreed or Agreed) for their involvement in PA services.

Respondents indicated some concern regarding the limited knowledge of patients on what pharmacists can do for them as a prescriber. In terms of overall relationships with patients,

respondents indicated that patients were satisfied with the services pharmacists provide as a prescriber.

Respondents reported that they had a good relationship with physicians. However, they did express concerns about their limited interactions with physicians as MA prescribers.

Respondents generally reported supportive environments and positive interactions with patients and physicians. However, while expressing confidence in their ability to provide all prescriptive authority services, Level 1 services that supported traditional dispensing services were generally more consistently provided, supported, and perceived as being valued by patients and physicians compared to Minor Ailment Prescribing.

The results also support the notion that pharmacists are highly confident to provide PA services to the patients and their relationships with the patients and physician improved day by day. Nevertheless, there is little evidence to suggest that patient's level of knowledge about pharmacist's new role; pharmacist's interaction with physicians and physicians' knowledge on PA have affected the provision of Prescriptive Authority services.

DEDICATION

I dedicate my dissertation work to my loving family and all friends. I would like to express a special feeling of gratitude to my loving parents, whose words of encouragement, and push for tenacity ring in my ears, my sister who has never left my side and is very special to me.

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1. INTRODUCTION

Pharmacists have been described as well trained and highly educated health care professionals with richly developed clinical judgment and scientific skills unique from other health professionals (Weiss & Sutton, 2009); although their expertise is seen as chronically under-utilized, their involvement in clinical activities has steadily increased in recent years. Pharmacists now provide multiple levels of direct and indirect patient care services in a variety of practice settings; to more effectively manage the care of their patients, pharmacists increasingly: carry out patient assessment; order, interpret, and monitor laboratory tests; create and implement therapeutic plans; and provide ongoing and follow-up care (Giberson, Yoder, & Lee, 2011). The nature of pharmacy practice is also evolving with changes in the authority and responsibilities of pharmacists. Pharmacists are taking on a greater role in prescribing and managing medication in the provision of quality patient care through improved drug selection, dosing, use and monitoring (Law, Ma, Fisher, & Sketris, 2012).

2. LITERATURE REVIEW

The literature review begins with an overview of the evolution of the practice internationally and in Canada, followed by a review of the prescriptive authority of pharmacists including the continuous progress in the pharmacist's scope of practice. This is followed by a review of generally-accepted prescriptive authority models with a focus on Canadian models; and in particular the Saskatchewan model.

The next section reviews a recent and major addition to the pharmacist's scope of practice (Minor Ailment Prescribing). This briefly summarizes the minor ailment conditions that pharmacists are eligible to assess and the guideline they need to follow. This is followed by a review of some challenges that pharmacists face while performing prescriptive authority services.

Next, the impact of prescriptive authority services on the relationships of a pharmacist with physicians and patients is focused on. This literature review is concluded with a brief summary of the concerns discussed, followed by research questions and hypotheses.

2.1 The Evolution of Pharmacy Practice

Prior to the mid-1950s, pharmacists had a well-defined social value centered on the manufacturing and distribution of drug products (Holland & Nimmo, 1999); however, the role of the community pharmacist was generally limited to the compounding, dispensing and labeling of pharmaceutical products for their patients (Pearson, 2007; Adamcik, et al, 1986). By the mid-1960s, with the emergence of the concept of clinical pharmacy, pharmacists began to move toward a more patient oriented practice. By the early 1980s, emerging technologies allowed pharmacists to develop better communication with their patients resulting in improved compliance with drug therapies (McBean & Blackburn, 1982; Hurd et al, 1984).

In the 1990s, the pharmaceutical care model emerged which emphasized the role of the pharmacist in the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life (Pearson, 2007; Hepler & Strand, 1989; CPhA, September 2008). Today, pharmacists are seeking to be patient-centered health care providers, educated to respond to, provide advice on and/or fulfill many of their patients' health care as well as drug-related needs.

While often perceived as medication dispensers, pharmacists' professional roles now go well beyond that function. Generally perceived as the most accessible health care professionals, pharmacists are also seen as increasingly important members of the health care team (CPhA, 2011; Carey, 2010; Lai et al, 2013). Presently, their role in addition to expanding scopes of practice, pharmacy is seen as one of the most trusted professions (C-Health News, Sept 30, 2014).

According to Lai et al (2013) cooperation between pharmacists and other health care providers has also improved with the expansion of the pharmacist role in healthcare and patient care. Studies have also shown that physicians have accepted that it is important to expand the community pharmacist's role in patient advocacy to help provide patients with medical information (Lai et al, 2013; Bradshaw & Doucette, 1998).

As the health system's drug experts, pharmacists have been involved or have the potential to be involved in providing many health care services (Carey, 2010; Lai et al, 2013). These services may include, but are not restricted to:

- Formulate and execute treatment plans;
- Select, initiate, modify, or administer drug therapy;

- Monitor and evaluate the patient's reaction, including effectiveness and safety;
- Medication and disease education in order to improve understanding and appropriate use of medications;
- Provide necessary information to the patient's health care team;
- Promote patient adherence; provide information and education on over-the-counter products, natural health products and procedures for various minor ailments;
- Coordinate and integrate medication therapy management (MTM) services

2.2 Prescriptive authority (the next step in the evolution of pharmacy practice)

One of the more significant changes in scopes of practice in the last 10 years is the expansion of prescriptive authority to a number of health professions, including pharmacy (Cooper et al., 2008). The rationale for expanding prescribing authority to other healthcare professionals is to enhance the continuity of care and patients' access to medicines, while reducing waiting times and fragmentation of care (Cooper et al., 2008).

Prescriptive authority is defined as the legal recognition by federal, state or provincial law that an individual is entitled to recommend the initiation, modification and discontinuance of the drug treatment for other than him or herself (Yuvs et al., 2000). Globally, many healthcare systems such as the United Kingdom, Australia and the USA include some form of prescribing (e.g. renew/extend prescription and prescribing in emergency) by pharmacists or other non-physician healthcare professionals, offering potential advantages in terms of increasing patients' continuity of care and access to medicines, better utilization of economic and human resources, reductions in patient waiting times and less fragmentation of care (Cooper et al. 2008.; Nissen, L., 2011).

The role of the pharmacist in prescribing medications has taken many turns throughout history (Lloyd et al., 2010). In the more traditional model of prescribing, physicians have the authority to prescribe medication, order laboratory tests and perform procedures consistent with a patient's diagnosis (Pearson et al., 2001). In more recent scenarios, prescriptive authority has extended to other health professions. The rationale for extending prescriptive authority include: decreasing general practitioners workload; improving patient access to medication; maintaining continuity of patient care; optimizing medication management; and using pharmacists to their full scope of practice (Emmertson et al., 2005; Pharmacist Prescribing, 2010).

To improve patient access to medicines, quality of prescribing, and patient monitoring, limited prescribing privileges have been extended to pharmacists in some jurisdictions. The rationale for giving pharmacists this authority is that they are the profession with the most education and experience in drug therapy and that they are highly trained in the appropriate selection and management of prescription medications (Law et al., 2012).

2.3 Prescriptive Authority Models

The ability of pharmacists to “prescribe” in a community setting has increased considerably in recent years; however, the nature of prescribing varies across jurisdictions (Law et al., 2012). In Canada, Alberta was the first province to initiate some form of prescribing by pharmacists in 2007 (Yuksel et al., 2008; Mansell et al., 2014). After that, other Canadian provinces and territories started giving some form of prescribing rights to the pharmacists (CPhA, 2013; Mansell et al., 2014).

2.3.1 Pharmacist Prescriber Models

In general, pharmacist prescribing models are broadly categorized as one of two types. The first is dependent or supplementary prescribing and the second is independent prescribing (Emmerton et al., 2005).

Dependent Prescribing: Under the dependent prescribing (DP) model the pharmacist is not completely responsible for patient’s evaluation and health care assessment. In this model, the physician (also referred to as primary prescriber) and the pharmacist (also referred to as the supplementary prescriber) work on the basis of mutual partnership and agree to assess patients according to a defined protocol; often either pre-written guidelines or a formulary containing a detailed list of activities that the pharmacist will perform (Emmerton L. et al. 2005).

Independent prescribing: Under the independent prescribing model, the pharmacist is entirely responsible for patient evaluation and health care assessment. In addition, the pharmacist must be able to fulfill some/all of the following criteria to prescribe as an independent prescriber (PIP, General Pharmaceutical Council, 2006):

- Understand the responsibilities that the role of independent prescriber entails, be aware of their own limitations, and work within the limits of their professional competence;
- Develop an effective relationship and communication with patients, careers, other prescribers and members of the health care team;

- Describe the pathophysiology of the condition being treated and recognize the signs and symptoms of illness take an accurate history and carry out a relevant clinical assessment where necessary;
- Able to use diagnostic aids relevant to the condition(s) for which the pharmacist intends to prescribe, including monitoring response to therapy;
- Demonstrate a shared approach to decision making by assessing patients' needs for medicines, taking account of their wishes and values and those of their care providers when making prescribing decisions;
- Demonstrate an understanding of the public health issues related to medicines use.
- Demonstrate an understanding of the legal, ethical and professional framework for accountability and responsibility in relation to prescribing; and
- Work within clinical governance frameworks that include audit of prescribing practice and personal development.

In the United Kingdom, pharmacists have been able to train and practice as prescribers since 2003, initially as supplementary (2003) and later (2006) the independent prescribers (Cooper et al. 2008; Stewart et al. 2010). Within independent prescribing, pharmacists are eligible to prescribe all the medications that come under their capabilities except controlled drugs (Cooper et al. 2008; Tonna et al. 2007; Reeves, 2007). Apart from supplementary and independent prescribing, pharmacists in the UK are also eligible to get into some other prescribing activities such as: Formulary Prescribing (FP), Patient Referral (PR) and Patient Group Directives (PGD) (Emmerton et al., 2005).

In the United States, at least 45 states allow limited pharmacist dependent prescribing as part of collaborative drug therapy management (CDTM) agreements (Pearson, 2007; Pharmacist prescribing task force, information paper, May-June 2010; Traynor, 2004; Meyer, et al. 2008; Status CTDM, 2004;). The way this model works is the doctor must first diagnose the medical condition and then the pharmacist selects the proper medication for the diagnosed condition, initiates, monitors, modifies and discontinues the drug therapy if required (Emmerton et al. 2005; Hammond et al. 2003; Hoti et al. 2011) . Three US states (New Mexico, North Carolina and Montana) allow pharmacists to initiate drug therapy (Pharmacist prescribing task force, information paper, May-June 2010).

2.3.2 Canadian Models

In Canada, many provinces have substantially broadened the pharmacist's right to prescribe and the profession's scope of practice over the past few years. For example, 11 out of thirteen provinces/territories in Canada allow pharmacists to prescribe independently to some degree (Table 2.1) (Law et al., 2012).

Table 2.1: Pharmacists' Expanded Scope of Practice Activities across Canada

✓ Implemented in Jurisdiction		Province/Territory												
■ Pending Legislation														
×	Not Implemented	BC	AB	SK	MB	ON	QC	NB	NS	PEI	NL	NWT	YT	NU
Pharmacist Scope of Practice	Provide emergency prescription refills	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×
	Renew/extend prescriptions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×
	Change drug dosage/formulation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×
	Make therapeutic substitution	✓	✓	✓	×	×	✓	✓	✓	✓	✓	×	×	×
	Minor ailments prescribing	×	✓	✓	✓	×	✓	✓	✓	✓	■	×	×	×
	Initiate prescription drug therapy	×	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×
	Order and interpret lab tests	×	✓	■	✓	■	✓	■	✓	■	×	×	×	×
	Administer a drug by injection	✓	✓	■	✓	✓	×	✓	✓	✓	✓	×	×	×
	Regulated Pharmacy Technicians	✓	✓	■	■	✓	×	✓	✓	✓	✓	×	×	×
	BC	AB	SK	MB	ON	QC	NB	NS	PEI	NL	NWT	YT	NU	

Canadian Pharmacists Association. June 2015

In all 10 provinces and 1 territory, pharmacists are allowed to continue existing prescriptions and emergency prescription refills, ten allow changes to drug dosage or formulation, eight allow pharmacists to make therapeutic substitution, seven provinces allow pharmacists to prescribe for minor illness, eight allow pharmacists to initiate prescription drug

therapy, eight province allow pharmacists to administer a drug by injection and seven provinces allow pharmacists to regulate pharmacy technicians. Only four provinces allow pharmacists to order and interpret lab tests (Law et al., 2012).

2.4 Interdependent prescribing (the Saskatchewan model)

In 2006, the Saskatchewan College of Pharmacists proposed an interdependent prescriptive authority model to optimize the role of pharmacists in collaborative prescribing, to improve the primary health care system and to promote the mutual bonding between patients, pharmacists, physicians and nurses (SCP, 2006). In this model, the pharmacist relies upon the diagnostic skills of the physician and the assessment skills of nurses, who in turn rely upon the drug therapy knowledge of pharmacist. Working collaboratively, their ultimate goal is to optimally manage the pharmacotherapy of patients and ensure optimal health outcomes (SCP, 2006).

For the profession, the fundamental objectives behind introducing the interdependent prescriptive model in Saskatchewan were to: broaden the pharmacist's scope of practice; allow pharmacists to recommend drugs within current competencies; expand the authority of the pharmacist to recommend medication; optimize the role of pharmacist; legalize activities that the pharmacist is skilled in performing; and assist the physician and other distinct health care providers in administering pharmacotherapy to patients (SCP, 2006).

Under this model (SCP, 2006) pharmacists are allowed to prescribe medication for:

- Continuing therapy – interim supplies and maintenance
- Previously prescribed drugs in emergency situations
- Incomplete or inaccurate prescriptions
- Refills during physician's absence
- Medications to be continued when moving from one setting in the health care system to another
- Self-care of minor ailments where a prescription drug is more effective

However, the pharmacist is not authorized to prescribe narcotics, controlled drugs and targeted substances (SCP, 2006).

2.5 Minor ailment prescribing: expansion of prescriptive authority in SK

All community pharmacists licensed to practice in Saskatchewan are required to complete "Prescriptive Authority Level 1 - basics" and "Minor Ailments Training" (MedSask,

2015). Minor Ailment Prescribing is a Level I Prescriptive Authority service in which patients are able to seek the help of their community pharmacist if they need prescription medications for certain minor ailments or self-diagnosed conditions.

In minor ailment prescribing, if the self-diagnosis is good enough based on the pharmacist's assessment and the suitable treatment option in the pharmacist's judgment is a Schedule 1 drug, the pharmacist is eligible to initiate a prescription (MedSask, 2015). If the pharmacist is unable to confirm the patient's diagnosis or the patient's symptoms are severe, the pharmacist is required to refer the patient to a physician or other appropriate health care provider.

By May 2012, the Saskatchewan College of Pharmacists Council for Minor Ailment Services had given prescriptive authority for pharmacists to assess and prescribe Schedule 1 drugs for several minor ailment conditions including mild acne, allergic rhinitis, cold sores, diaper dermatitis, insect bites, simple mouth ulcers, and oral thrush (Table 2.2) (MedSask, 2015).

Table 2.2: Minor Ailment Conditions in 2012

	Minor Ailments Conditions	Added to the list
1	Mild acne	Feb 1 st , 2012
2	Cold sores	
3	Insect bites	
4	Diaper dermatitis,	May 24 th , 2012
5	Simple mouth ulcers	
6	Oral thrush	
7	Allergic rhinitis	

Saskatchewan College of Pharmacists (SCP), July 2014; MedSask, 2015

In addition, Saskatchewan pharmacists broke new ground in Canada with minor ailment assessment fees effective from February 1, 2012. These fees provide pharmacies with \$18 per intervention when they assess approved “minor ailment conditions” that result in a prescription with medication (Lynas, 2012).

More recently, SCP Council approved the addition of new minor ailments conditions including headache and migraine, bacterial skin infections, atopic dermatitis, dyspepsia, GERD (Gastroesophageal Reflux Disease) and tinea infections (such as athlete's foot and ringworm), hemorrhoids, dysmenorrhea, and muscular skeletal pain, spasm and stiffness (Table 2.3) (MedSask, 2015).

Table 2.3: Minor Ailment Conditions in 2014

	Minor Ailments Conditions	Added to the list
1	Headache and Migraine	July 29 th , 2014
2	Bacterial skin infections	
3	Atopic dermatitis	
4	Dyspepsia	
5	GERD	
6	Tinea infections (such as athlete's foot and ringworm)	
7	Hemorrhoids	
8	Dysmenorrhea	
9	Muscular skeletal pain, spasm and stiffness	

Saskatchewan College of Pharmacists (SCP), July 2014; MedSask, 2015

Guidelines for each minor ailment were developed by Saskatchewan Drug Information Services (SDIS) (now MedSask). Pharmacists are required to follow the given guideline while assessing patients for minor ailments. All pertinent information related to the minor ailments is contained in the individual guidelines including: overview of pathophysiology; common signs and symptoms; patient assessment and treatment for each condition; how to assess; and when to refer (MedSask, 2015).

The expansion of pharmacist's scope of practice into minor ailment prescribing was designated to allow pharmacists to better fulfill their patients' health care related needs. The stated purpose was to allow pharmacists to more effectively encourage patients to make decisions regarding their health by consulting a pharmacist so that they can take care of their health in an optimal manner, not only in cities but, in rural and remote areas as well (Government of Saskatchewan, 2012).

Pharmacists are seen as well prepared and skilled to have an important and positive impact on patient health in Saskatchewan. According to public opinion polls, Saskatchewan residents are not only happy with pharmacists providing minor ailment prescribing services, they also need pharmacists to provide many other health related services so that patients can get more benefits (Government of Saskatchewan, 2012).

2.6 Prescriptive Authority: Challenges

Prescriptive authority represents an expansion of scope of practice for most community pharmacists in Saskatchewan. In expanding their scopes of practice, pharmacists will be required

to change the nature of their work. As pharmacists seek to redefine their work activities to accommodate prescriptive authority, they may also face challenges due to existing structures and processes within their current practice settings.

While the expansion of prescriptive authority represents a significant opportunity for pharmacists to enhance their role in the delivery of quality patient care services, a number of challenges within the practice environment have the potential to limit the ability of pharmacists to fully adopt an expanded clinical role in the care of their patients. These challenges include: workload and time constraints; clarity of prescribing role; perceived lack of skills and knowledge; space and technology constraints; insufficient remuneration; and potential lack of managerial support (Giberson et al. 2011).

2.6.1 Workload and time commitment:

In a 2005 survey, both primary and secondary care pharmacists in England rated time commitment and workload as major obstacles that affect pharmacists to expand their professional role particularly in community pharmacy setting (George et al. 2006). In a UK study, Weeks et al. (2010) identified time management and work pressure as a barrier that hinders the ability of a pharmacist to prescribe. Makowsky et al. (2013) also reported prescribing as an additional workload in pharmacist's work due to additional paperwork required.

2.6.2 Clarity of prescribing role:

A Canadian study evaluating how prescribing has changed the pharmacists' role in primary care found that some pharmacists believed that they had acquired importance from the act of prescribing, particularly with physicians (Guirguis, et al. 2011). However, physicians appeared to maintain medical domination through their part in managing supplementary prescribing activities. In addition, the authors defined some situations in which pharmacists were doubtful about the definition of prescribing, such as recommending over-the-counter medications, continuing existing medications and making dose adjustments (Guirguis, et al. 2011).

2.6.3 Perceived lack of skills and knowledge:

Many pharmacists are uncomfortable in performing diagnosis, have concerns about inadequate clinical examination skills, or are concerned they lack in-depth knowledge of patient

medical histories (Stewart et al. 2009; Tonna et al. 2007). Furthermore, this concern about pharmacist competence also exists among other health professionals, most notably physicians. In a study by Hatah et al (2012), general practitioners (GP) expressed the concern that pharmacists do not know the patient well enough to prescribe appropriately, and this might result in inappropriate prescribing or cause a delay in appropriate medical advice or treatment and could be harmful to their patients.

In the same study (Hatah et al. 2012), GP's perceived that screening, monitoring, and pharmacist prescribing, particularly for repeat prescriptions and collaborative prescribing for a particular drug, contribute to discontinuous or fragmented patient-care. They were concerned that pharmacist-based services associated with prescribing might reduce the frequency of GPs seeing their patients, and perhaps impair the GP-patient relationship. They also thought these new services might reduce GP's opportunities to talk with their patients about other health concerns and also decreased their overall picture of a patient's health condition.

Physicians were also less enthusiastic about pharmacist independent prescribing as they felt that medical training had taught them to manage uncertainty and take responsibility for making decisions based on clinical experience. They indicated that pharmacists, while worthy at following procedures, did not have the training or experience to make these independent decisions which are normally based on unclear reasons (Lloyd, Pearson, & Hughes, 2010).

2.6.4 Access to consulting space/patient information:

Assessing patients may require a level of privacy and accessing patient information not routinely part of day-to-day pharmacy practice (Hatah et al. 2012 ; Lloyd et al., 2010), and the typical pharmacy counter does not provide a safe or appropriate space for discussing the management of medications (Gibson, 2008). The lack of space/facilities can also prevent pharmacists with supplementary prescribing qualifications from concentrating on supplementary prescribing services rather than regular pharmacist responsibilities (George et al, 2006).

According to one study (Hatah et al. 2012), in which it was proposed that pharmacists work within a medical practice, many GPs were concerned that they did not have enough space and computers available for pharmacists to provide their services. Some also bothered about pharmacists providing screening, monitoring, and prescribing since a pharmacy may not have a

private consulting room, so may not be an appropriate place for conducting physical examinations or to collect sensitive medical histories.

An inadequate IT infrastructure was also identified among several stakeholders (clinical lead) in the United Kingdom and this involved practical issue such as not being able to print prescriptions and more general problems such as a lack of access to patients' medical records (Cooper et al. 2008). Pharmacists also indicate difficulty in accessing medical records and sharing information (Lloyd, Pearson, & Hughes, 2010).

2.6.5 Level of Remuneration:

If remuneration is insufficient it may serve as disincentive to pharmacists (George et al. 2006). In a study by Hatah et al, (2012) many GPs agreed that it would be ideal for pharmacists to provide Clinical Medication Review at the GPs' practice; but some were concerned about who was going to pay for this service. Lack of payment is an issue that prevents pharmacists prescribing because to supervise a supplementary prescribing trainee in the UK, a general practitioner may expect to receive payment for it (Hobson & Sewell, 2006).

2.6.6 Managerial support:

Prescriptive authority and related cognitive activities may not be supported by an organization's leadership. In England, a lack of support, trust and a reluctance to implement nonmedical prescribing were barriers to implementation in secondary care, as it was not considered to be a key priority (Lloyd, Pearson, & Hughes, 2010).

Some other issues related to organization priorities included insufficient access to electronic health records, difficulties in identification of suitable patients due to lack of formal referral systems in place, and inadequate administrative support for the day-to-day running of the clinics; these issues are some of the potential reasons preventing pharmacists from moving forward toward getting independent prescribing authorities (George et al. 2006).

2.7 Prescriptive Authority - Implications for Relationships

Expanding scope of practice (e.g. prescriptive authority and minor illness prescribing) has the potential to demonstrate the value of the pharmacist to both physicians and patients. However, relations with prescribers may be adversely affected if viewed as encroachment or if recommendations are seen as inappropriate (Lloyd et al., 2010).

In studies by Lloyd, Pearson, & Hughes (2010) and Lloyd & Hughes (2007), some pharmacists felt there was reluctance among other health care providers, such as physicians and nurses, to share involvement in prescribing and a feeling of encroachment onto their territory. They also found some pharmacists think that it might be a bit awkward, working alongside with health care providers who also may be trying to become supplementary prescribers and feel that you are moving into their territory (Lloyd & Hughes, 2007).

Some conflicts and professional tensions between non-physician prescribers (such as pharmacists and nurses) in the practice settings have also been observed where pharmacists have encroached upon nurses (Cooper et al. 2008).

Although patients are expected to benefit from an expansion of scope of pharmacy practice, they may be concerned about new unfamiliar roles. Patients are getting quicker access to medication and average waiting time for patients by the physicians is also reduced (Stewart et al. 2009). Because pharmacists have better knowledge of drugs, patients can get a more detailed look at all their medications and can discuss the adverse effect of drugs in more detail with the pharmacist (Stewart et al. 2009).

Improvement in patient care has been observed in terms of safety (safety checking around prescribing has become better and is continuing to become better), quality and continuity of care (Lloyd et al. 2010).

2.8 Summary

A review of the literature indicates that pharmacists have the experience in drug therapy management and have enough knowledge about prescription medicines to effectively manage the pharmaceutical care of their patients. Their roles and responsibilities within the health care system have been continuously changing since the early nineteen nineties. Previously pharmacists were viewed as a drug manufacturers and their role was limited to compounding, dispensing and labeling of drug products. Pharmacists evolved toward a more patient-oriented practice and developed the concept of clinical pharmacy.

After getting involved in patient-oriented practice for decades, pharmacists became more experienced in patient care and health care delivery and made themselves an important part of the health care system.

In recent times some changes in the health care system have been made by introducing non-medical prescribing. The aim of introducing non-medical prescribing was to reduce general practitioners workload, improve patient access to medication, maintain continuity of patient care, and optimize medication management (Cooper et al. 2008; Nissen, L., 2011). In non-medical prescribing, limited prescriptive authority has expanded to other health care professionals, and pharmacists are one of them because they are highly trained health care professionals in medication management. More recently, pharmacists have begun to prescribe independently in some countries including parts of the United Kingdom, United States and Canada, but their authority of prescribing medicine is still limited.

There are many reasons to justify new prescriptive authority for pharmacists such as increased patient access to medication, improvement in professional relationship with physicians, and better use of health care resources. However, there are challenges that impede the effectiveness and widespread use of prescriptive authority such as workload and time commitment, lack of funding, and perceived professional encroachment. Pharmacists have shown the ability to prescribe but they have to overcome some issues related to their skills like inadequate clinical examination skills and become uncomfortable in doing diagnosis etc. to move forward toward independent prescribing.

Pharmacists have an important role to play as part of the health care community and also in addressing and resolving issues like patient safety, optimal health outcomes, financial sustainability and changing scope of practice of health care professionals by expanding their scope of practice.

2.9 Research Questions

- To what extent has expanded prescriptive authority been integrated into community practice?
- How have the characteristics of the community practice setting affected participation by community pharmacists in services associated with expanded prescriptive authority?
 - What aspects of practice are seen to support the use of prescriptive authority?
 - What aspects of practice are seen to challenge to use of prescriptive authority?
- To what extent has expanded prescriptive authority affected the primary professional relationships of community pharmacists?
 - How have relations with patients been affected by prescriptive authority?
 - How have relations with physicians been affected by prescriptive authority?

2.10 Hypothesis

- Ho1: There is no relationship between various practice characteristics and the participation in Level One Prescribing in SK
- Ho2: There is no relationship between various practice characteristics and the participation in Minor Ailment Prescribing in SK
- Ho3: There is no relationship between participation in Level One Prescribing and the quality of the pharmacist's relationship with patients in SK
- Ho4: There is no relationship between participation in Minor Ailment Prescribing and the quality of the pharmacist's relationship with patients in SK
- Ho5: There is no relationship between participation in Level One Prescribing and the quality of the pharmacist's relationship with physicians in SK
- Ho6: There is no relationship between participation in Minor Ailment Prescribing and the quality of the pharmacist's relationship with physicians in SK

3. METHODOLOGY

3.1 Study design

To investigate the research questions, a quantitative survey design was used. One of the reasons for using quantitative survey design is to collect details about the current knowledge and experience of community pharmacists within Saskatchewan about the issues related to their work activities and relationships. A qualitative study, while identifying specific issues would not allow extrapolation to the general community pharmacy population. Using a quantitative survey design enabled comparisons between different groups and also provided estimates from respondents that can be related to the entire population with a degree of certainty (Sukamolson, S. et al. 2005).

The design also allowed the study to obtain, measure, and analyze data, and to study in detail the relationship between independent and dependent variables. A quantitative study also permitted statistical assessment of the extent that specific attitudes are held and behaviors displayed by the study population (Sukamolson, S. et al. 2005).

Although a quantitative method was originally selected to collect and analyze data, subsequent to giving to the field a large number of qualitative comments were received from the respondents. It was therefor decided appropriate to include those comments along with the quantitative results to give strength to the overall results. Hence, a mixed method approach was required to more fully address the research questions. A decision was made to use a sequential mixed method approach to collect and analyze both quantitative and qualitative data. A mixed method approach was seen to help in generalizing in-depth knowledge and experience of participants' perceptions (Eli, 2009).

A mixed methods study involves the collection or analysis of both quantitative and/or qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority, and involve the integration of the data at one or more stages in the research process (Creswell et al. 2002; Eli, 2009).

Johnson and Turner (2003) also suggest that one of the strengths of designing a mixed method study which is opposed to either of the two separate methods (quantitative or qualitative) is that it gives complementary strengths and non-overlapping weaknesses.

Since the purpose of this study was descriptive; a cross-sectional study design was used. Although it restricts the ability to show causality, it allowed the confirmation of relationships, to

acquire an understanding of issues at a point of time and it is relatively economical in terms of resources and time to complete (Sukamolson, S. et al. 2005).

3.2 Study population and sample

All registered practicing community pharmacists in Saskatchewan were eligible to participate in the study. According to the National Association of Pharmacy Regulatory Authorities (NAPRA, 2013), there were 1416 pharmacists practicing in many different professional settings in Saskatchewan representing around 4.3 percent of the 33,000 pharmacists practicing in Canada (CPhA, 2013). Of the 1416 practicing in Saskatchewan, 998 (70.5%) were identified as community pharmacists based on primary practice location as reported by the Saskatchewan College of Pharmacists.

The sample size was calculated using proprietary software (Roasoft, 2013). Based on a population of 998 community pharmacists, a sample of 278 was needed to obtain a confidence level of 95 percent and a margin of error of +/- 5 percent. A review of similar studies indicated an expected response rate of between 30 and 35 percent (Perepelkin & Dobson, 2010; Doucette et al, 2006; Kreling et al, 2006; Schommer et al, 2006). In order to achieve a 30 percent response rate a sample of 926 community pharmacists was required. Given the size of the required sample and the relative size of the entire population, the decision was made to include all 998 community pharmacists in Saskatchewan. The Saskatchewan College of Pharmacists agreed to provide the practice mailing addresses of all community pharmacists in Saskatchewan.

3.3 Measures

This study sought to understand the extent to which: community pharmacists in Saskatchewan have incorporated approved prescriptive authority services into their practices; how this is associated with characteristics of the practice location; and whether expanded prescriptive authority has affected their relationships with physicians and patients. The measures described below sought to address these objectives and reflect the layout of the questionnaire that was used to collect the data.

Part A- Integration of prescriptive authority into community pharmacy:

All licensed community pharmacists with Level-1 prescribing training are eligible to prescribe for Level-1 conditions and some Minor ailment conditions in Saskatchewan

(Saskatchewan College of Pharmacists, 2010). Items under this section address the extent to which community pharmacists are actually involved in and perform these activities (Hill & Ramaswamy-Krishnarajan, 2005; CPhA, Sept. 2008). As well some items in this section were used to address how confident community pharmacists are in providing Level-1 and Minor ailment prescribing (Law et al., 2012).

Part B- How Expanded prescriptive authority affects community practice setting:

Items in this section were used to address issues related to the characteristics of the community pharmacist's practice location (Law et al., 2012). This section of the questionnaire sought to address two major questions; first, what aspects of the practice location support prescriptive authority services and second, what aspects of the practice location challenge the use of prescriptive authority services.

Items in this section include: How consistently do pharmacists at the location provide prescriptive authority services (Level-1 and Minor Ailment Prescribing); how much support do they get from the manager or the owner of their pharmacy (Lloyd et al., 2010); and whether or not documentation associated with the Level-1 and Minor Ailment Prescribing services deters them in providing Prescriptive Authority Services (Cooper et al. 2008). This section also contains some items that allowed respondents to give their views on liability issues within their workplace, and whether these issues affected their decision to offer Prescriptive Authority Services to their patients. Pharmacists were also asked to indicate their level of agreement on the issue of demands of other professional duties taking priority over PA services they provide (George et al. 2006).

Part C- How Expanded prescriptive authority affects the primary professional relationships of community pharmacists:

This section was developed to understand community pharmacist's views of their primary professional relationships (Pharmacist prescribing task force, information paper, May-June 2010). Items under this section fall under two sub categories: pharmacist's relations with patients (Stewart et al. 2009); and pharmacist's relations with physicians (Lloyd et al., 2010; Lloyd & Hughes, 2007). The first category of items was used to address the following: How knowledgeable their patients are about what PA services allow pharmacists to do; do the patients

satisfied with the PA services pharmacist provide; and whether pharmacists get any appreciation from their patients for the PA services they provide for them.

Second category items were used to address: How knowledgeable physicians are about what PA services allow pharmacists to do; satisfaction level of the physician over PA services pharmacists provide; whether or not physicians accepting pharmacists as a PA service provider; to what extent physicians rely on the pharmacists providing PA services to their patients; and do the physicians have greater respect for pharmacists professional contribution because pharmacists provide PA service to their patients.

Part D- The pharmacist completing the questionnaire:

The importance of items under this section was to gather information about the demographics of the participant pharmacists. This section identified specifically information about the gender, age, education, degree earned, current position and the type of pharmacy they work at.

Part E- Additional Comments:

The purpose of this section in the questionnaire was to give participants some open space to write their additional comments if they thought the comment are relevant to the topic of the questionnaire. This section allowed them to write about any issue that they felt is important to rise, but has not been mentioned in the questionnaire.

Five point Likert scales were used to give participants a “Neutral” option to ensure that they did not feel they were being forced to agree or disagree on an issue that they do not want to, or did not have enough knowledge about it. It was also felt that respondents might become frustrated by not having a mid-point and that could reduce the accuracy of data collection. Providing a mid-point also has some cons associated with it such as: it gives respondents an “Out” that means mid-point can be an easy option to choose for the respondents when they are unsure and the second reason is respondents may be less discriminating, meaning not take the time to weigh the merit of each response category (Losby & Wetmore, 2012).

According to a survey conducted by Infosurv (2006) with a forum of market researchers to understand their preference between 5-point and 6-point likert scale, 71% participant of researchers agreed that the neutral rating is needed when conducting survey research; Only 12% preferred 6-point and 17% were neutral on the issue (Gwinner, 2006).

Both 5-point and 7-point Likert scales are most accurate as compared to smaller or larger scales (Alwin & Krosnick, 1991) and studies provide no grounds for preferring one over other (Johns, 2010). However, the 5-point Likert scale was given preference over 7-point to use in this study because it strikes a compromise between the conflicting goals of offering enough choice and making things convenient for respondents (Johns, 2010).

3.4 Data collection

A modified version of the Dillman method was used to obtain responses from the population (Dillman, 2000). Participants received an introductory notification letter (Appendix A) one week before the first questionnaire was sent out, which indicated the purpose of the survey and the reasons why they were selected as participants (Table 3.1). One week after the introductory notification letter, the first mailing of questionnaire was sent to the participants along with a cover letter and a pre-stamped return envelope (Appendix B & C). After 14 days a reminder card was posted to the non-responded participants indicating the importance of their input in the study (Appendix D). Fourteen days after the reminder letter participants received a second questionnaire (Appendix E).

Table 3.1: Data collection timeline

Activity	Duration	Date
Notification	Start	Feb 4, 2014
First Questionnaire	One week	Feb 11, 2014
Reminder	Two weeks	Feb 25, 2014
Second Questionnaire	Two weeks	Mar 11, 2014
Second Reminder	Two weeks	Mar 25, 2014
Data Concluded	One month	April 25, 2014

Two weeks after the second questionnaire a second reminder card was posted to the non-responded participants indicating the importance of their input in the study (Appendix F). One month later the collection of data study was closed (Dillman, 2000; Ivencova, 2002).

A mail survey was used to prevent any potential that the researcher may directly influence the responses (West, 2011). Along with the mail survey an online web link of questionnaire was also created to give participants an alternative option to participate in the survey, and to help maximize the overall response rate (Dillman, 2000).

3.5 Data analysis

3.5.1 Quantitative Analysis

All collected data were statistically analyzed using the latest available version (20.0) of IBM SPSS software for Windows. Descriptive statistics were reported for the demographics of the study populations. Since the study aim was to get the opinion of participant pharmacists, the analysis was based on the average of their responses. In order to find group averages and variations within the groups, mean and standard deviation were performed followed by the t-test and One-way ANOVA for comparative analysis, mean differences between groups and significance differences. Post-hoc analysis (Scheffe's Test) was used to confirm significant differences identified with ANOVA. Pearson's *r* correlation tests were performed in order to determine the strength of correlations between continuous and interval data.

3.5.2 Qualitative Analysis

Qualitative data analysis is an essential part of the two step sequential mixed methods approach. Creswell et al. (2003) found that the quantitative followed by a qualitative method are the two distinct phases of a sequential mixed methods design. In this mixed methods approach researchers collect and analyze qualitative data (comments) in the second phase after collecting and analyzing quantitative data in the first phase of the study. Collecting and analyzing qualitative data in the second phase helps to explain and elaborate quantitative data. The rational of qualitative data analysis is that it helps to refine and explain quantitative findings by exploring respondents' opinions in more depth (Creswell et al. 2003; Ivankova et al. 2006).

In this study, qualitative data was collected in the form of participants' comments. The Comments were analyzed by breaking them down into themes followed by sub-themes which

occurred via coding process (Sarantakos, 1998). Categorizing comments into themes helped to organize, understand, and interpret respondent's perspective regarding issues mentioned in the questionnaire. Most suitable comments from each category were used along with the quantitative data to explore respondent's views in more depth to answer the research questions.

3.6 Validity

The validity of a questionnaire describes the “extent to which a measure accurately represents the concept it claims to measure” (Punch, 1998; Roberts et al. 2006). There are four major types of validity: face validity, content validity, construct validity, and criterion validity (Smith, 2005; Hoti, 2010).

Face validity is generally assessed to make sure information constructed by responses is appropriate (Smith, 2005; Hoti, 2010). It can be achieved by piloting the questionnaire with a group of representative participants similar to the intended study participants before administering it to actual population (Hoti, 2010; Roberts et al. 2006).

Content validity is assessed to ensure the relevance of the content of the questionnaire to the study purpose (Smith, 2005; Hoti, 2010). It can be achieved by piloting the questionnaire group of representative participants similar to the intended study participants, before administering it to actual population (Roberts et al. 2006).

Criterion validity is assessed to determine correlation between questions and the variable (Smith, 2005; Hoti, 2010). It is a strong form of validity. It can be achieved by comparing the questionnaire with similar validated measures of similar perceptions of phenomenon (Roberts et al. 2006).

Construct validity is assessed to determine if questions accurately reflect their concept (Smith, 2005; Hoti, 2010). Factor analysis is a popular way to determine construct validity by representing a number of statistical procedures used to determine characteristic correlation (Roberts et al. 2006).

For this study, face and content validity were assessed. Experts within the College of Pharmacy & Nutrition, University of Saskatchewan, and experienced community pharmacists were asked to evaluate face and content validity of the instrument prior to taking it to the field. The pilot questionnaire was administered to a group of three community pharmacists working in three different pharmacy locations and two experienced professors to detect and fix any defect,

wording issues, and confusion. This process was repeated three times in order to ensure the validity of the questionnaire content. There were no major corrections required in the questionnaire, as only a few minor issues were remedied.

3.7 Reliability

Reliability is one of the essential factors needed to generate an effective questionnaire. It can be defined as the extent to which “questions lead to reproducible responses that are internally consistent” (Smith, 2005; Hoti, 2010). Generally, there are two types of reliability; internal (the extent to which a measure is consistent within itself) and external (the extent to which a measure is varies from one use to another) (Mcleod, 2007). Internal reliability can be assesses by split-half method (by splitting tests in halves and comparing results) and external reliability can be assesses by one of the two following methods: test re-test (by administering same test to the participants twice and comparing results) or inter-rater (by observing same behaviour independently and comparing results) (Mcleod, 2007).

For this study, internal reliability was assessed by comparing responses of the first mailing with those of the second mailing. External reliability was assessed using the test re-test reliability method. A comparison was made between responses received via paper-based (mail) questionnaires vs online questionnaires.

3.8 Ethical consideration

Issues related to ethics were addressed prior to start the survey study. All questions and research protocols were submitted to the ethics board of the University of Saskatchewan for their approval. Questionnaires were administered once the study got approved by the University of Saskatchewan Behavioural Research Ethics Board (BEH# 11-133) (Appendix G).

4. RESULTS

4.1 Response Rate

Questionnaires were sent out to 998 eligible community pharmacists provided by the Saskatchewan College of Pharmacists. After the first mailing of the questionnaire and the first reminder letter, 340 questionnaires were returned including 20 online (Table 4.1). Seven questionnaires were returned as undeliverable due to a change in the location of the pharmacist. This reduced the number of eligible participants to 991; for a response rate after the first round of mailing of 34.3% (340/991).

Table 4.1: Total responses received

RESPONSE RECEIVED				
	After First Mailing	After Second Mailing	Total	Undelivered
Paper Based Questionnaires	320	130	450	7
On-line Questionnaires	20	31	51	14
Total	340	161	501	21

After the second round of mailings 161 additional completed questionnaires were received, including 130 paper based and 31 online. An additional 14 were returned as undeliverable, resulting in a final response rate to 51.3% (501/977).

In assessing internal reliability, no differences were found between first and second mailing responses. In assessing external reliability very few statistical differences were found between mailing and on-line. Those responding online indicated that they are slightly more confident (L1 = 1.28 online vs. L1 = 1.50 mail-in; MA = 1.77 online vs. MA = 2.06 mail-in) in providing Prescriptive Authority services (Level 1 ($t = 2.757$, $p < 0.05$) and MA ($t = 2.452$, $p < 0.05$)).

The *Independent sample t-test* also revealed statistically significant differences between groups based on their age ($t = 2.681$, $p < 0.05$) with respect to the method of response (either mail or online). Average age of respondents that responded via mail was around 41 years while respondents that decided to respond online were around 37 years.

4.2 Demographic characteristics

Data were collected of the demographic characteristics of all respondents (Table 4.2) including gender, age, current position, and the type of pharmacy in which they worked primarily. The majority of the participants (341, 68.1%) were females. Five respondents did not indicate their gender.

The average age of respondents was 41 years. The minimum age of respondents was reported at 23 years and maximum 83 years. A total of 55 (11%) respondents did not report their age.

Table 4.2 Respondents demographic characteristics

Variable	Total Responses n (%)
Sex	
Female	341 (68.1)
Male	155 (30.9)
Total	496 (99)
Age	
Maximum	83
Minimum	23
Mean	40.9
Current Position*	
Staff Pharmacist	305 (60.9)
Manager	119 (23.8)
Associate	8 (1.6)
Owner	59 (11.8)
Other	7 (1.4)
Total	498 (99.4)
Pharmacy Type	
Independent	115 (23.0)
Small Chain	20 (4.0)
Banner	77 (15.4)
Large Chain	104 (20.8)
Franchise	52 (10.4)
Grocery Store	90 (18.0)
Department Store	7 (1.4)
Mass Merchandiser	21 (4.2)
Other	9 (1.8)
Total	495 (98.8)

*Merged Staff Pharmacists and Other into one category for analysis

*Merged Associate and Owner into one category for analysis

In identifying their primary practice locations, 42.4 percent (212) of respondents indicated that they worked either at an independent pharmacy, a banner or a small chain

pharmacy. More than thirty percent (157) indicated they worked in either a franchise or a large chain pharmacy. The remaining respondents (127, 25.1%) indicated the pharmacy type as grocery store, departmental store, mass merchandiser or other (consultancy clinic). Six participants (1.2 %) did not respond to the question.

4.3 Descriptive Analysis of the Results

4.3.1 Respondents participation in Prescriptive Authority Services

Study participants were asked to indicate their confidence in providing Level 1 and Minor Ailment Prescribing to their patients (Table- 4.3). For this study, Level 1 prescribing included activities such as: emergency prescription refills, renew/extend prescriptions, changing drug dosage/formulation, and therapeutic substitution. Minor Ailments (MA) prescribing included all activities associated with initiating a prescription for a MA condition (i.e., acne, cold sores, insect bites, allergic rhinitis, oral ulcers, oral thrush, and diaper rash).

Table 4.3: Respondents participation in Prescriptive Authority Services:

Question	Type of Prescribing	Strongly Agree n (%)	Agree n (%)	Neutral n (%)	Disagree n (%)	Strongly Disagree n (%)	Total Responses n (%)	Mean SD	P Value
I am confident in my ability to provide Prescriptive Authority Services to my patients.	Level 1	285 (56.9)	186 (37.1)	14 (2.8)	4 (0.8)	3 (0.6)	492 (98.2)	-0.569 0.839	<.001
	Minor Ailment	110 (22.0)	268 (53.5)	75 (15.0)	22 (4.4)	3 (0.6)	478 (95.4)		

The vast majority of respondents (94%) agreed or strongly agreed that they were confident in their ability to provide Level 1 prescribing to the patients. When they were asked the same question about Minor Ailment Prescribing more than 75 percent agreed or strongly agreed. Very few respondents indicated less confidence in their ability to provide either Level 1 or Minor Ailment Prescribing.

The *paired sample t-test* was performed to determine whether there were significant differences between responses in relation to *their confidence in the ability to provide Prescriptive Authority Services* (Level 1 and MA Prescribing). The test revealed a statistically significant difference ($p < 0.001$) in their confidence to provide the two types of prescribing

services (Mean = -0.569, SD = 0.839). The difference was also viewed significant (>0.5) with participants more confident in providing Level 1 services.

In comparing the groups based on their sex, independent sample t-tests were performed to compare pharmacist's confidence in providing Prescriptive Authority services. In the case of Level 1, there was no statistically significant difference between groups ($t = 0.551, P > 0.05$). As well no differences based on sex was seen for MA ($t = 1.813, p > 0.05$).

One-way ANOVA was conducted to determine the difference amongst groups based on the current job position of the pharmacists (Staff Pharmacist, Manager, and Owner/Associate). There were no statistical significant differences among groups in the case of Level 1 ($F(2, 486) = 1.666, p > 0.05$). In the case of MA prescribing there was a statistical significant difference ($F(2, 472) = 4.739, p < 0.05$); however, post-hoc analysis for homogeneous subsets revealed no such differences ($p > 0.05$) among groups.

One-way ANOVA revealed no statistical significant differences among groups based on their age ($(3, 437) = 1.849, p > 0.05$) in the case of Level 1 prescribing; however, statistical significant differences were observed in the case of MA prescribing ($(3, 423) = 3.719, p < 0.05$) (Table 4.4).

Table 4.4: One-way ANOVA (Showing significant differences based on Age)

Question		Sum of Squares	Df	Mean Square	F	Sig.
I am confident in my ability to provide Minor Ailment Prescribing Services to my patients.	Between Groups	6.802	3	2.267	3.719	0.012
	Within Groups	256.082	420	0.610		
	Total	262.884	423			

Post hoc analysis indicated statistical significant differences amongst groups based on age in the case of MA prescribing (Table 4.5). Respondents between the age of 23-30 indicated a higher confidence level (1.88/5) than the respondents between the age of 51-83 (2.21/5).

Table 4.5: Post-hoc analysis based on Age

Age quartiles	N	Subset of alpha = 0.05	
		1	2
23-30	106	1.88	
31-40	131	1.94	1.94
41-50	90	2.09	2.09
51-83	97		2.21
Sig.		0.284	0.109

One-way ANOVA revealed no statistical significant differences among groups based on location of the pharmacy (community size): rural & small town (<1000 people), small city (1k-30k people), medium city (30k- 100k) and large city (>100k people) (Statistics Canada, 2011) ((Level 1 ($F(3, 487) = 0.434, p > 0.05$), MA ($F(3, 473) = 0.132, p > 0.05$)).

4.3.1.1 Respondents participation in Prescriptive Authority Services

Participants were asked to respond to two questions about the percent of all opportunities in which they actually provided Level 1 and Minor Ailment Prescribing to patients (Table 4.6). For Level 1 Prescribing, respondents indicated on average that they provided this service to their patients about three-quarters (74.2%) of the time when the opportunity presented itself. In the case of Minor Ailment Prescribing, respondents indicated on average that they provided this service approximately half of the time (52.5%).

Table 4.6: Respondents participation in Prescriptive Authority Services:

Question		Response quintile (%)					Rate of Participation (%)	Paired Difference	P Value
		0-20	21-40	41-60	61-80	81-100		Mean (SD)	
Of <u>all</u> the opportunities I have to provide Prescriptive Authority Services , the percent of which I actually provide these prescribing activities.	Level 1	8.4	2.8	9.2	36.6	43.1	74.2	21.697 (26.890)	<.001
	Minor Ailment	25.8	9.2	20	29.6	15.6	52.5		

A majority of respondents (43%) reported on average that they provide Level 1 prescribing services to their patients almost every time (90+%). However, around 37 percent indicated on average that they provide this service around three-quarters of the time; while a very few (20%) indicated on average that they provided this service less than half of the time (Table 4.6) (Figure 1).

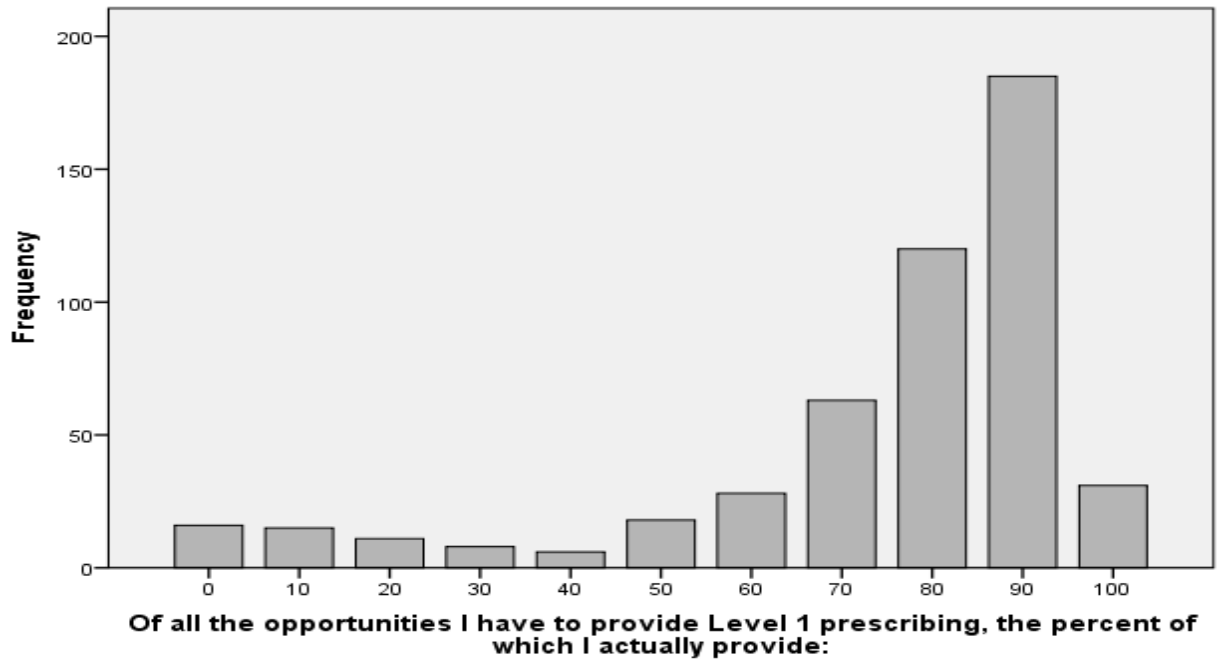


Figure 1: Respondents participation in Level 1 Prescribing Services

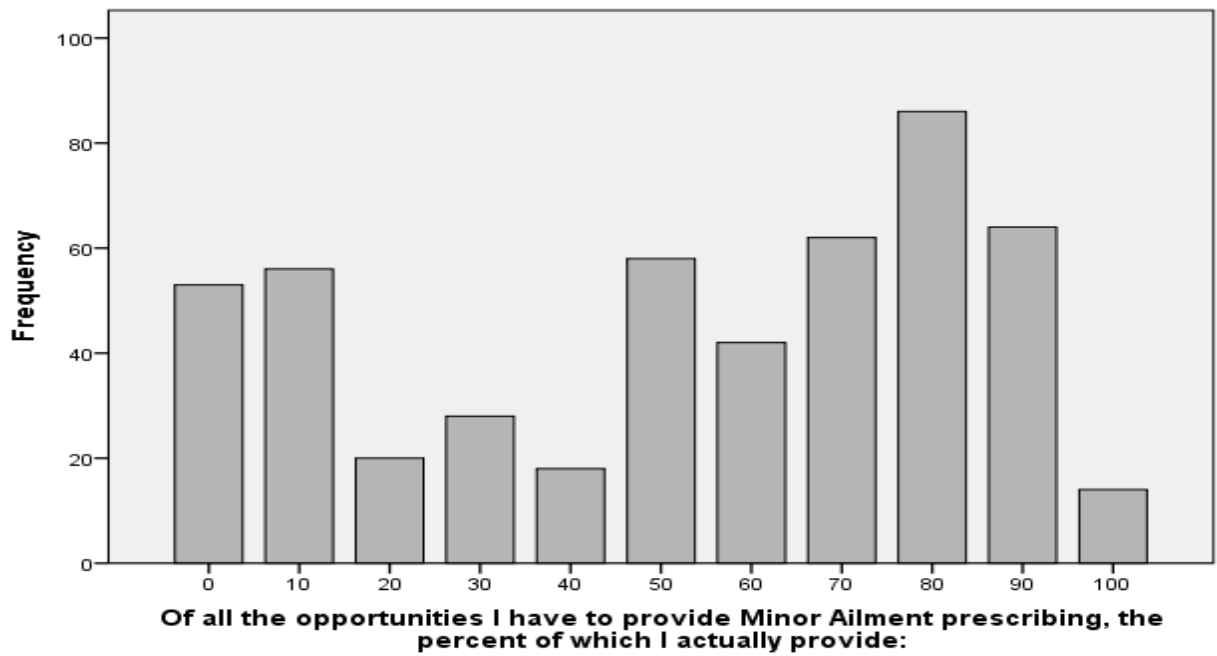


Figure 2: Respondents participation in Minor Ailment prescribing services

Respondents reported a totally different view for the same question in the case of Minor Ailment prescribing, only a few respondents (15.6 %) indicated on average that they provided this service to the patients almost every time (90+%) when the opportunity presented to them. However, around 30 percent indicated on average that they provide this service almost three-quarters of the time; while a majority of respondents (55%) indicated on average that they provide MA services less than half of the time to the eligible patients. (Table 4.6) (Figure 2).

A statistically significant difference ($p < 0.001$) was observed among respondents in relation to the *percent of all opportunities in which they actually provide* these services to their patients ($M = 21.697$, $SD = 26.890$) (Table 4.6).

The *Independent sample t-test* revealed statistically significant differences between groups based on their sex for Level 1 ($t = 1.983$, $p < 0.05$) and MA ($t = 2.116$, $p < 0.05$) prescribing. Female respondents were more likely to agree that they actually provide these services more often ($L1 = 75.9$, $MA = 54.9$) than males ($L1 = 71.3$, $MA = 48.2$).

In order to increase validity of the data a non-parametric analysis was performed with the assumption that normal distribution is not met. The Wilcoxon Signed Ranks test revealed statistically significant differences ($z = -14.93$, $p < 0.001$) between: of all the opportunities I have to provide Level 1 prescribing, the percent of which I actually provide and of all the opportunities I have to provide MA prescribing, percent of which I actually provide. The results indicate that the respondents actually provide MA prescribing slightly more often than Level 1.

One-way ANOVA based on Age revealed statistically significant differences among groups in both the cases (Table 4.7). Post hoc analysis confirmed that there were statistical significant differences among groups based on age. However, in the case of Level 1 prescribing the differences were marginally significant (Table 4.8) but, in the case of MA prescribing differences were strongly significant (Table 4.9).

Table 4.7: One-way ANOVA (Showing significant differences based on Age)

Question		Sum of Squares	Df	Mean Square	F	Sig.
Of <u>all</u> the opportunities I have to provide Level 1 prescribing , the percent of which I actually provide Level 1 prescribing activities.	Between Groups	10411.691	3	3470.56	6.300	0.000
	Within Groups	243480.910	442	550.862		
	Total	253892.601	445			
Of <u>all</u> the opportunities I have to provide Minor Ailment prescribing , the percent of which I actually provide Minor Ailment prescribing activities.	Between Groups	36826.326	3	12275.4	13.40	0.000
	Within Groups	403859.772	442	913.710		
	Total	440686.099	445			

Table 4.8: Post-hoc analysis based on Age (Level 1)

Age quartiles	N	Subset of alpha = 0.05	
		1	2
51-83	103	67.28	
41-50	94	72.13	72.13
23-30	111		77.48
31-40	138		79.57
Sig.		0.508	0.141

Table 4.9: Post-hoc analysis based on Age (MA)

Age quartiles	N	Subset of alpha = 0.05		
		1	2	3
51-83	103	39.51		
41-50	94	46.70	46.70	
31-40	138		57.83	57.83
23-30	111			63.06
Sig.		0.379	0.062	0.651

In the case of Level 1 prescribing, respondents between the ages of 31-40 indicated that they provide this service to the patients slightly more often than the respondent between the ages of 51-83 (Table 4.8). However, in the case of MA prescribing respondents between the ages of 23-30 indicated that they provide this service much more often than the respondents between the ages of 51-83 (Table 4.9).

Non-parametric version of ANOVA was also performed in the form of Kruskal Wallis test. The test revealed no statistical significant difference ($p > 0.05$) among groups based on age in both the cases. Post hoc analysis confirmed that there were no statistical significant differences among groups based on age.

One-way ANOVA based on job position revealed no statistical significant differences among groups for Level 1. In the case of MA, there was a statistical significant difference (Table 4.10). Post-hoc analysis indicated that there were some differences amongst the opinions of Owner or Associate and Manager in relation to the *percent of which they actually provide MA services* (Table 4.11).

Table 4.10: One-way ANOVA (Showing significant differences based on job position)

Question		Sum of Squares	Df	Mean Square	F	Sig.
Of <u>all</u> the opportunities I have to provide Minor Ailment prescribing , the percent of which I actually provide Minor Ailment prescribing activities.	Between Groups	6328.001	2	3164.001	3.240	0.040
	Within Groups	483326.015	495	976.416		
	Total	489654.016	497			

Table 4.11: Post-hoc analysis based on job position

Position	N	Subset of alpha = 0.05	
		1	2
Owner/Associate	67	47.61	
Staff Pharmacist	312	51.44	51.44
Manager	119		58.57
Sig.		0.654	0.231

Pharmacy managers indicated that they actually provide this service more often (58.6%) than Owners or Associates (47.6%) when the opportunity presented to them.

Non-parametric version of ANOVA was also performed in the form of Kruskal Wallis test. The test revealed no statistical significant difference ($p > 0.05$) among groups based on job position in both the cases. Post hoc analysis confirmed that there were no statistical significant differences among groups based on job position.

One-way ANOVA revealed no statistical significant differences among groups based on the location of the pharmacy.

A Pearson's r data analysis revealed moderately strong correlation (0.3 to 0.5) (Cohen, 1988) between pharmacist's confidences in providing Prescriptive Authority services and the percent of which they actually provide these services (Table 4.12).

Although the overall correlation is moderately strong, the pharmacist's confidence in providing MA prescribing services correlate more strongly with the percent of time they actually provide the services (Table 4.12).

Table 4.12: Correlations (Pearson's r data analysis)

	Of <u>all</u> the opportunities I have to provide Level 1 Prescribing, the percent of which I actually provide these prescribing activity	Of <u>all</u> the opportunities I have to provide Minor Ailment Prescribing, the percent of which I actually provide these prescribing activity
I am confident in my ability to provide Level 1 Prescribing Services to my patients.	-0.353 0.000 492	-0.224 0.000 492
I am confident in my ability to provide Minor Ailment prescribing Services to my patients.	-0.184 0.000 478	-0.500 0.000 478

Participants were also asked to estimate the amount of time they take to provide Minor Ailment Prescribing to their patients (Table 4.13).

Table 4.13: Respondents participation in Prescriptive Authority Services:

Question	Response (min)						Minimum (minutes)	Maximum (minutes)	Mean (minutes)	Total Responses N
	0-5	5-10	10-15	15-20	20-30	30-60				
On average, in terms of minutes, how much time does it take you to provide Minor Ailment prescribing services to a patient for one of the seven listed conditions?	2.4	20.8	34.8	23.4	8.2	0.6	4	60	16.1	452

Respondents indicated that the average time they used to provide minor ailment prescribing was 16.1 minutes. A vast majority of respondents (81.4 %) indicated that on average it took twenty minutes or less to provide this service to their patients while less than 10 percent (8.8 %) indicated that it took more than twenty minutes. Approximately ten percent of participants did not respond to the question.

The *Independent sample t-test* revealed statistical significant differences between male and female pharmacists ($t = 2.377, p < 0.05$) in relation to the average time they provide MA Prescribing services. Mean difference indicate that female pharmacists (16.5 min.) took slightly more time than males (15 min.).

One-way ANOVA based on Age revealed statistical significant differences among groups (Table 4.14). Post-hoc analysis indicated that there were some differences amongst the opinions of respondents based on their age (Table 4.15).

Table 4.14: One-way ANOVA (Showing significant differences based on Age)

Question		Sum of Squares	Df	Mean Square	F	Sig.
On average, in terms of minutes, how much time does it take you to provide Minor Ailment prescribing services to a patients	Between Groups	315.996	3	105.332	2.892	0.035
	Within Groups	14606.717	401	36.426		
	Total	14922.712	404			

Table 4.15: Post-hoc analysis based on Age

Age quartiles	N	Subset of alpha = 0.05	
		1	2
23-30	107	14.95	
31-40	126	15.65	15.65
51-83	84	16.12	16.12
41-50	88		17.44
Sig.		0.508	0.229

Respondents between the age of 41-50 indicated that on an average they take slightly more time to provide MA prescribing (17.44 min) than the respondents between the age of 23-30 (14.95 min) (Table 4.15).

Analysis using One-way ANOVA revealed no statistical significant differences among groups based on sex (Female and Male pharmacists) and location of pharmacy (Rural and Small Town, Large City, Small City and Medium City).

4.3.2 Respondent's level of concern about professional liability associated with Level 1 and Minor Ailment prescribing:

A large percent of respondents (354, 70.7%) disagreed or strongly disagree with being concerned with the issue of professional liability with Level 1 prescribing (Table 4.16); 61.1 percent (306) of respondents indicated the same for minor ailment prescribing.

Table 4.16: Professional liability concerns associated with Level 1 and Minor Ailment Prescribing:

Question	Type of Prescribing	Strongly Agree n (%)	Agree n (%)	Neutral n (%)	Disagree n (%)	Strongly Disagree n (%)	Total Responses n (%)	Mean SD	P Value
Concerns about liability affect my decision to offer some Prescriptive Authority Services	Level 1	10 (2.0)	61 (12.2)	72 (14.4)	251 (50.1)	103 (20.6)	497 (99.2)	0.178 0.759	<.001
	Minor Ailment	10 (2.0)	81 (16.2)	80 (16.0)	235 (46.9)	71 (14.2)	477 (95.2)		

While most respondents were generally not concerned about professional liability, approximately 14 percent (71) (Level1) and 18 percent (91) (MA) agreed or strongly agreed that they had concerns.

A statistically significant difference ($p < 0.001$) was found between respondent's opinions regarding their concerns about liability with respect to two type of prescribing ($M = 0.178$, $SD = 0.759$) (Table 4.16).

Analysis using One-way ANOVA revealed no statistical significant differences among groups based on the location of the pharmacy.

4.3.3 Respondents concerns about the characteristics of the community practice setting affected participation by community pharmacists in services associated with expanded prescriptive authority

When asked whether their pharmacy consistently provide Level 1 Prescribing services to the patients (Table 4.17), 90 percent (451/493) strongly agreed or agreed to the statement. In the case of Minor Ailment Prescribing almost 53 percent (265/481) respondents strongly agreed or agreed.

When asked about whether the pharmacy manager supports Level 1 prescribing in their pharmacy, approximately 96 percent (479/493) of respondents strongly agreed or agreed to the statement. In the case of Minor Ailment Prescribing 88 % (441/485) strongly agreed or agreed.

A mixed response was observed when participants were asked whether paperwork associated with prescriptive authority services (Level 1 and MA Prescribing) deters them offering these services. More than two-thirds of respondents (339/494, 67.6 %) strongly disagreed or disagreed to the statement for Level 1 Prescribing. In the case of MA Prescribing only 44 percent (219/480) strongly agreed or agreed.

Respondents were also asked whether the demands of their other professional duties sometimes took priority over Prescriptive Authority Services. Almost 55 percent (271/494) respondents strongly disagreed or disagreed while 25.4 percent (127/494) strongly agreed or agreed in the case of Level 1 Prescribing. For MA Prescribing almost 50 percent (249/486) respondents strongly agreed or agreed and 28.2 percent (141/486) strongly disagreed or disagreed.

Table 4.17: Respondents confident about their ability to provide prescriptive authority services (Level 1 and Minor ailment prescribing) to the patients

Question	Type of prescribing	Strongly Agree n (%)	Agree n (%)	Neutral n (%)	Disagree n (%)	Strongly Disagree n (%)	Total Responses n (%)	Mean SD	P Value
My pharmacy consistently provides Prescriptive Authority services to our patients.	Level 1	246 (49.1)	205 (40.9)	22 (4.4)	15 (3.0)	5 (1.0)	493 (98.4)	-0.989 1.106	<.001
	Minor Ailment	60 (12.0)	205 (40.9)	99 (19.8)	89 (17.8)	28 (5.6)	481 (96.0)		
The pharmacy manager supports Prescriptive Authority services in this pharmacy.	Level 1	353 (70.5)	126 (25.1)	9 (1.8)	3 (0.6)	2 (0.4)	493 (98.4)	-0.287 0.570	<.001
	Minor Ailment	250 (49.9)	191 (38.1)	35 (7.0)	5 (1.0)	4 (0.8)	485 (96.8)		
Paperwork associated with Prescriptive Authority services often deters me from offering these services.	Level 1	17 (3.4)	70 (14.0)	68 (13.6)	208 (41.5)	131 (26.1)	494 (98.6)	0.891 1.171	<.001
	Minor Ailment	55 (11.0)	164 (32.7)	97 (19.4)	124 (24.8)	40 (8.0)	480 (95.8)		
The demands of my other professional duties take priority over Prescriptive Authority services.	Level 1	25 (5.0)	102 (20.4)	96 (19.2)	198 (39.5)	73 (14.6)	494 (98.6)	0.707 1.053	<.001
	Minor Ailment	72 (14.4)	177 (35.3)	96 (19.2)	116 (23.2)	25 (5.0)	486 (97.0)		

As displayed in table 4.17, there were statistically significance differences ($p < 0.001$) among respondent's opinions. Substantial difference (>0.5) were seen for three of the four items including; *pharmacy consistently providing these services*, *effect of associated paperwork* and *the demands of other professional duties*.

The *independent sample t-test* revealed no statistical significant differences between groups (first versus second mailing) in the case of MA Prescribing. For Level 1, there were statistical significant differences in two of the four items including the question *pharmacy consistently providing Level 1 services* ($t = -2.457$, $p < 0.05$) and *pharmacy manager supports Level 1 prescribing* ($t = -2.588$, $p < 0.05$). The number of respondents responded to the first

mailing indicating their pharmacies are slightly more consistent in providing Level 1 prescribing (M = 1.82) than the respondents who responded to the second mailing (M = 1.59). In the case of Managers' support, the respondents' that responded to the first mailing indicated slightly more support (M = 1.29) than the respondents who responded to the second mailing (M = 1.47).

Paired sample t-test revealed no statistical significant differences between groups (Male and Female Pharmacists) in the case of MA Prescribing (Table 4.18). For Level 1 there were statistical significant differences in one of the four items including *the demands of other professional duties take priority over Level 1 Prescribing*. The number of females disagreed or strongly disagreed with the statement "*professional duties take priority over Level 1*" was more than the males (Table 4.18).

Table 4.18: Paired sample T-Test

Question	Type	Paired Difference		T	Df	Sig. (2-tailed)
		Mean	Std. D			
I am confident in my ability to provide Prescriptive Authority Services to my patients.	Level 1	-0.57	0.84	-14.80	475	<.001
	Minor Ailment					
Of <u>all</u> the opportunities I have to provide Prescriptive Authority Services, the percent of which I actually provide these prescribing activity (please circle most appropriate percent).	Level 1	21.7	26.89	18.06	500	<.001
	Minor Ailment					
Concerns about liability affect my decision to offer some Prescriptive Authority Services	Level 1	0.18	0.76	5.13	475	<.001
	Minor Ailment					
My pharmacy consistently provides Prescriptive Authority services to our patients.	Level 1	-0.99	1.11	-19.58	478	<.001
	Minor Ailment					
The pharmacy manager supports Prescriptive Authority services in this pharmacy.	Level 1	-0.29	0.57	-11.08	483	<.001
	Minor Ailment					
Paperwork associated with Prescriptive Authority services often deters me from offering these services.	Level 1	0.89	1.17	16.65	478	<.001
	Minor Ailment					
The demands of my other professional duties take priority over Prescriptive Authority services.	Level 1	0.71	1.05	14.79	484	<.001
	Minor Ailment					

One-way ANOVA revealed statistically significant differences among groups in two of the four items in both cases (Level 1 and MA) based on the job position (Table 4.19). Item includes: *Pharmacy manager support for Prescriptive Authority and the demands of other duties take priority over PA*.

Table 4.19: One-way ANOVA (Showing significant differences based on job position)

Question		Sum of Squares	Df	Mean Square	F	Sig.
The pharmacy manager supports Level 1 prescribing in this pharmacy.	Between Groups	2.891	2	1.446	4.279	0.014
	Within Groups	164.515	487	0.338		
	Total	167.406	489			
The demands of my other professional duties take priority over Level 1 prescribing.	Between Groups	10.684	2	5.342	4.343	0.014
	Within Groups	600.237	488	1.230		
	Total	610.921	490			
The demands of my other professional duties take priority over MA prescribing.	Between Groups	12.011	2	6.005	4.660	0.010
	Within Groups	618.523	480	1.289		
	Total	630.534	482			

There were statistically significant differences among groups in the case of Level 1 for the first item. Staff Pharmacists and Owners/Associates both agreed to the fact that managers' support Level 1 prescribing in their pharmacy. However, the mean score of Staff Pharmacists (1.38) was slightly higher than Owners/Associates (1.17) (Table 4.19). In the case of MA, Post-hoc analysis revealed no differences between groups.

In relation to the second item, statistically significant differences were observed among the groups for both forms of Prescribing Level 1 and MA (Table 4.19). Pharmacy Managers were more likely to disagree (3.63) with the fact that other professional duties take priority over Level 1 but, Owners/Associates were more inclined towards a Neutral option (3.18). In the case of MA, Managers were almost Neutral (2.96) to the statement but, most of the Owners/Associates were more likely to agree (2.52) to the fact that other professional duties take priority over MA Prescribing.

Table 4.20: One-way ANOVA (Showing significant differences based on location)

Question		Sum of Squares	df	Mean Square	F	Sig.
The pharmacy manager supports Level 1 prescribing in this pharmacy.	Between Groups	3.054	2	1.018	3.006	0.030
	Within Groups	165.261	488	0.339		
	Total	168.315	491			

Based on the location of the pharmacy, One-way ANOVA revealed statistically significant differences among groups in one of the four items only in the case of Level1 prescribing (Table 4.20); Item: *Pharmacy manager support for Level 1 prescribing by pharmacists*. Post-hoc analysis later confirmed the differences among groups; both groups of pharmacists working in the large cities and the medium cities agreed to the fact that managers'

support Level 1 Prescribing in their pharmacy. However, the mean score of the pharmacists working in medium cities (1.55) was a bit higher than the one working in the large cities (1.28).

A Pearson's r data analysis revealed moderately strong correlation between variables (Table 4.21).

All four of the questions that respondents were asked about their engagement in Prescriptive Authority services have shown moderately strong correlation with the percent of which they actually provide these services. However, overall correlation in the case of MA prescribing is found to be slightly stronger than Level 1 (Table 4.21).

Table 4.21: Correlations (Pearson's r data analysis)

		Of <u>all</u> the opportunities I have to provide Level 1 Prescribing, the percent of which I actually provide these prescribing activity	Of <u>all</u> the opportunities I have to provide Minor Ailment Prescribing, the percent of which I actually provide these prescribing activity
My pharmacy consistently provides Prescriptive Authority services to our patients.	Level 1	-0.375 0.000 493	-0.172 0.000 493
	Minor Ailment	0.274 0.000 481	-0.567 0.000 481
The pharmacy manager supports Prescriptive Authority services in this pharmacy.	Level 1	-0.317 0.000 493	-0.242 0.000 493
	Minor Ailment	-0.226 0.000 485	-0.414 0.000 485
Paperwork associated with Prescriptive Authority services often deters me from offering these services.	Level 1	0.330 0.000 494	0.173 0.000 494
	Minor Ailment	0.154 0.001 480	0.453 0.000 480
The demands of my other professional duties take priority over Prescriptive Authority services.	Level 1	0.306 0.000 494	0.251 0.000 494
	Minor Ailment	0.240 0.000 486	0.484 0.000 486

Two of the four questions about their engagement in Prescriptive Authority services correlated positively with the percent of which they actually provide these services and the other two correlated negatively. The one that correlated negatively was: The pharmacy consistently

provides PA Services and Pharmacy managers' support. The one that correlated positively was: Paperwork associated with PA Services and the demands of other professional duties take priority (Table 4.21).

4.3.4 Participant's perception of patient's attitude toward Prescriptive Authority Services (Level 1 and Minor Ailment)

Participants were asked three questions about patient attitudes for both Level 1 and MA prescribing. Almost 40 percent (199/497) respondents indicated that their patients seemed knowledgeable about what Level 1 Prescribing allowed pharmacists to do for them. Almost 36 percent (181/497) strongly disagreed or disagreed with the statement and 23.4 percent (117/497) were neutral.

Table 4.22: Participant's perception of patient's attitude toward prescriptive authority services (Level 1 and Minor Ailment)

Question	Type of prescribing	Strongly Agree n (%)	Agree n (%)	Neutral n (%)	Disagree n (%)	Strongly Disagree n (%)	Total Responses n (%)	Mean SD	P Value
My patients seem knowledgeable about what Prescriptive Authority Services allows me to do for them.	Level 1	20 (4.0)	179 (35.7)	117 (23.4)	149 (29.7)	32 (6.4)	497 (99.2)	-0.574 1.001	<.001
	Minor Ailment	8 (1.6)	62 (12.4)	119 (23.8)	225 (44.9)	65 (13.0)	479 (95.6)		
My patients appear to be satisfied with the Prescriptive Authority Services I provide.	Level 1	155 (30.9)	310 (61.9)	25 (5.0)	3 (0.6)	0 (0.0)	493 (99.2)	-0.177 0.651	<.001
	Minor Ailment	123 (24.6)	263 (52.5)	69 (13.8)	9 (1.8)	0 (0.0)	464 (92.6)		
My patients seem to have a greater appreciation for my abilities because of Prescriptive Authority Service	Level 1	79 (15.8)	211 (42.1)	147 (29.3)	50 (10.0)	6 (1.2)	493 (98.4)	0.280 0.799	<.001
	Minor Ailment	110 (22.0)	221 (44.1)	110 (22.0)	20 (4.0)	2 (0.4)	463 (92.4)		

Almost 63 percent (290/479) of respondents strongly disagreed or disagreed to the same statement about MA prescribing with 23.8 percent (119/479) neutral (Table 4.22).

A vast majority of respondents (465/493, almost 93%) strongly agreed or agreed when they were asked whether their patients appear to be satisfied with the Level 1 Prescribing services they provided for them. In the case of MA Prescribing 77.1 percent (386/464) respondents strongly agreed or agreed.

The last question in this section asked whether patients seemed to have a greater appreciation for pharmacists' abilities because of Level 1 Prescribing. Almost 58 percent (290/493) respondents strongly agreed or agreed to the statement. In the case of MA Prescribing 66.1 percent (331/463) respondents strongly agreed or agreed.

Table 4.23: Paired sample T-Test

Question	Type	Paired Difference		t	Df	Sig. (2-tailed)
		Mean	Std. D			
My patients seem knowledgeable about what Prescriptive Authority Services allows me to do for them.	Level 1	-0.57	1.00	-12.54	476	<.001
	Minor Ailment					
My patients appear to be satisfied with the Prescriptive Authority Services I provide.	Level 1	-0.18	0.65	-5.86	461	<.001
	Minor Ailment					
My patients seem to have a greater appreciation for my abilities because of Prescriptive Authority Service	Level 1	0.28	0.80	7.53	459	<.001
	Minor Ailment					

As displayed in table 4.23. There were statistically significance differences ($p < 0.001$) among respondent's opinions. Substantial difference (>0.5) were seen for one of the three items: *Patients' knowledge about Prescriptive Authority services.*

4.3.5 Participant's perception of physician's attitude toward Prescriptive Authority Services (Level 1 and Minor Ailment)

In the last section of the questionnaire participants were asked five questions each for Level 1 and Minor Ailment Prescribing.

A majority of respondents (311/489, 62.1%) strongly agreed or agreed that the physicians they work with appear knowledgeable about what Level 1 prescribing allows them to do (Table 4.24).

Table 4.24: Participant's perception of physician's attitude toward prescriptive authority services (Level 1 and Minor Ailment)

Question	Type of prescribing	Strongly Agree n (%)	Agree n (%)	Neutral n (%)	Disagree n (%)	Strongly Disagree n (%)	Total Responses n (%)	Mean SD	P Value
The physicians that I work with appear knowledgeable about what Prescriptive Authority Services allows me to do.	Level 1	43 (8.6)	268 (53.5)	94 (18.8)	69 (13.8)	15 (3.0)	489 (97.6)	-0.770 0.932	<.001
	Minor Ailment	7 (1.4)	67 (13.4)	188 (37.5)	149 (29.7)	27 (5.4)	438 (87.4)		
The physicians that I work with appear satisfied with the Prescriptive Authority Services I provide.	Level 1	47 (9.4)	318 (63.5)	107 (21.4)	11 (2.2)	2 (0.4)	485 (96.8)	-0.525 0.684	<.001
	Minor Ailment	10 (2.0)	133 (26.5)	259 (51.7)	21 (4.2)	2 (0.4)	425 (84.8)		
The physicians that I work with seem reluctant to support Prescriptive Authority Services	Level 1	3 (0.6)	27 (5.4)	103 (20.6)	281 (56.1)	64 (12.8)	478 (95.4)	0.459 0.737	<.001
	Minor Ailment	4 (0.8)	35 (7.0)	224 (44.7)	146 (29.1)	17 (3.4)	426 (85.0)		
The physicians that I work with appear to rely on me to provide Prescriptive Authority Services to their patients.	Level 1	43 (8.6)	211 (42.1)	143 (28.5)	74 (14.8)	14 (2.8)	485 (96.8)	-0.901 1.040	<.001
	Minor Ailment	4 (0.8)	28 (5.6)	189 (37.7)	185 (36.9)	35 (7.0)	441 (88.0)		
The physicians that I work with seem to have greater respect for my professional contribution because of Prescriptive Authority Services	Level 1	15 (3.0)	93 (18.6)	280 (55.9)	79 (15.8)	6 (1.2)	473 (94.4)	-0.098 0.629	>.001
	Minor Ailment	11 (2.2)	48 (9.6)	287 (57.3)	73 (14.6)	7 (1.4)	426 (85.0)		

A large proportion of respondents were either neutral (188/438, 37.5%) or disagreed (149/438, 29.7%) to the same statement about MA Prescribing.

Participants were then asked whether the physicians they work with appear satisfied with the Level 1 service they provide. Almost 73 percent (365/485) of respondents strongly agreed or agreed to the statement. In the case of MA Prescribing only 28.5 percent (143/425) of respondents strongly agreed or agreed.

A large proportion of respondents (345/478, 68.9 %) were strongly disagreed or disagreed to the statement that the physicians were reluctant to support for Level 1 prescribing and 20.6 percent (103/478) were neutral. The same attitude was observed for the same question about MA Prescribing with 32.5 percent (163/426) disagreeing with the statement.

Table 4.25: Paired sample T-Test

Question	Type	Paired Difference		t	Df	Sig. (2-tailed)
		Mean	Std. D			
The physicians that I work with appear knowledgeable about what Prescriptive Authority Services allows me to do.	Level 1	-0.77	0.93	-17.23	434	<.001
	Minor Ailment					
The physicians that I work with appear satisfied with the Prescriptive Authority Services I provide.	Level 1	-0.52	0.68	-15.78	422	<.001
	Minor Ailment					
The physicians that I work with seem reluctant to support Prescriptive Authority Services	Level 1	0.46	0.74	12.80	422	<.001
	Minor Ailment					
The physicians that I work with appear to rely on me to provide Prescriptive Authority Services to their patients.	Level 1	-0.90	1.04	-18.03	433	<.001
	Minor Ailment					
The physicians that I work with seem to have greater respect for my professional contribution because of Prescriptive Authority Services	Level 1	-0.10	0.63	-3.19	417	>.001
	Minor Ailment					

Respondents were asked whether the physicians they work with appear to rely on them to provide Level 1 Prescribing to their patients. Two different views of the respondents for two different forms of prescribing have been observed in this question. Half of respondents (254/485, 50.1%) strongly agreed or agreed to the above statement and 28.5 percent (143/485) were neutral. A large group of the respondents either disagreed (185/441, 36.9%) or found to be neutral (189/441, 37.7%) for the same statement about MA Prescribing.

Finally, respondents were asked whether the physicians they work with seem to have greater respect for their professional contribution because of Level 1 Prescribing. More than half of the respondents (280/473, 55.9%) indicated neutral to the statement. A similar percent (287/426, 57.3%) indicated neutral when they were asked the same question about MA Prescribing.

With regard to *participant's perception of physician's attitude*, there were statistical significant differences ($p < 0.001$) observed in four of the five items. Out of which substantial difference (>0.5) were seen for three of the four which includes: *Physicians knowledge about service*, *Satisfaction with service* and *rely on pharmacists of this service* (Table 4.25).

Based on the location of the pharmacy, One-way ANOVA revealed statistically significant differences between groups in three of the five items out of which one item showed significant differences in both the cases (Level 1 and MA) and remaining two in one of each Level 1 and MA. Post-hoc analysis later confirmed the differences between groups in only one out of three items and only in the case of Level 1 prescribing (Table 4.26).

Table 4.26: One-way ANOVA (Showing significant differences based on location)

Question		Sum of Squares	Df	Mean Square	F	Sig.
The physicians that I work with appear to rely on me to provide Level 1 prescribing to their patients	Between Groups	21.359	3	7.120	8.278	0.000
	Within Groups	413.239	481	0.859		
	Total	434.598	484			

The item was: *The physicians that I work with appear to rely on me to provide Level 1 prescribing services to their patients*. Pharmacists working in the rural and small town or small cities were more likely to agree with the fact that physicians rely on them to provide Level 1 prescribing. However, the pharmacists working in medium cities suggested that they neither agree nor disagree.

In order to find the existence of a relationship between variables Chi-square statistical tests were performed (Table 4.27).

No statistical significant differences were found based on respondent's location and age quartiles, location and position, location and sex and location and type of mailing (first or second). There were statistical significant difference ($p < 0.05$) based respondent's location and their method of responding. The test revealed some association between the location of the pharmacy and the method of responding (Table 4.27).

Table 4.27: Pearson Chi-square test

Value	Df	Sig. (2-sided)	N
Location and Age quartile			
8.20	9	0.51	446
Location and Position			
13.13	6	0.04	498
Location and Sex			
1.38	3	0.71	498
Location and type of mailing (first or second)			
0.74	3	0.86	500
Location and method of responding (mail or online)			
15.97	9	0.001	500

The results of the data analysis along with the responses rate and demographic characteristics of respondents are present. The finding of this study will be discussed, which includes respondents' opinions and views about the series of questions, asked in the survey, regarding their practice settings and work environment.

4.4 Qualitative Results (respondents' comments)

In this study, all qualitative data were extracted in the form of respondent's comments. The data were then categorized into four broader themes. Themes were confidence & satisfaction, practice environment, patients and physicians.

Table 4.28: Qualitative Results

#	Comments about	Specific theme	#	Total #	%
1	Confidence & Satisfaction	Confidence	78	124	28.0
		Less/Not doing it	28		
		Satisfaction	18		
2	Practice Environment	Time	58	138	31.1
		Remuneration	30		
		Paperwork	28		
		Staffing	13		
		Pharmacy space and access to blood work	09		
3	Patients	Satisfaction	36	103	23.3
		Taking advantage	29		
		Knowledge	20		
		Mis self-diagnosis	11		
		Follow-up	07		
4	Physicians	Support	78	78	17.6

Total 124 comments were collected under the first theme (Confidence & Satisfaction), 138 under second (Practice Environment), 103 under third (Patients) and 78 comments were collected under the fourth theme (Physicians) (Table 4.28).

Above, four major themes were sub-divided into specific themes to attain a clear view of respondent's intentions and experiences.

The First theme (confidence & satisfaction) was categorized into the following three sub-categories:

1. **Confidence:** The comments included in this category were related to pharmacists' confidence in providing PA services.

Example: *My experience with PA over the last 6 months since graduation has been great. Once you have done it a couple of times it doesn't take long at all and it becomes a normal pharmacist task-duty we do regularly at our pharmacy. It has also developed strong relationships with our patients. I feel that my training to do PA has given me the confidence- knowledge that I need to provide this service. PA is an integral start to expanding the role of the pharmacist.*

(Participant 952).

2. **Less/Not doing it:** Comments categorized under this theme were related to whether pharmacists were providing less or no PA services to their patients.

Example: *I do not have time to provide minor ailment prescribing because we consistently work short staffed and are a busy store. I would feel more confident if I did it more often but there is no time in my day.*

(Participant 57).

3. **Satisfaction:** Comments under this category were related to pharmacists' level of satisfaction with the services they provide as a part of their expanding scope of practice.

Example: *Its great privilege to provide my patient quick and professional service. I enjoyed my experience being a Level 1 and Minor Ailment prescriber.*

(Participant 08).

The Second theme (practice environment) was categorized into five following sub-categories

1. **Time:** Comments under this category were related to time management issues. Whether or not pharmacists had the time to provide PA services.

Example: *Level 1 prescribing has easily become a routine service in our pharmacy, simple to provide, document and bill. Minor ailment prescribing is much more time consuming and therefor much more difficult to integrate into the work flow busy-ness plus the number of pharmacists available when opportunity arise strongly influence if/when these services are provided.*

(Participant 104).

2. **Remuneration:** Reimbursement related comments were included under this particular category. Whether or not pharmacists are happy with the reimbursement they get for providing PA services.

Example: *Lack of fair re-imburement, it takes me at least 5-10 min. to do all the proper paperwork. The \$6 sometime is just not work even though we always end up doing it because for the best interest of patients. But how could it be sustainable when our profit keeps going down due to new reforms in pharmacy.*

(Participant 290).

3. **Paperwork:** Comments containing issues related to paperwork were included in this category.

Example: *Pharmacists are expected to do an abundance of paperwork to collect an \$ 18 minor ailment fee. Physicians do minimal paperwork to allow them to prescribe a drug for minor ailment. More should be done to decrease the paperwork burden on minor ailment prescribing.*

(Participant 29).

4. **Staffing:** This category contains comments related to staffing issues at the pharmacy that pharmacists have pointed out.

Example: *MA prescribing is assuredly more difficult to achieve when combined with limited staffing and a busy dispensary. To provide these services we often must attempt to do so under considerable time constrain thus generally are only provided when patient initiated. Offering of MAP usually occurs during slow periods. Scheduling appointments when possible is desirable for time consuming consultations such as acne but not always achievable.*

(Participant 807).

5. **Pharmacy space and access to blood work:** Comments related to private space at the pharmacy and access to blood work were included under this category.

Example: *The principle pharmacy I work at, there is no private area to conduct MA prescribing, as I am the only pharmacist working during shift (no technician either) this would take a lot of time I cannot afford.*

(Participant 947).

The Third theme (Patients) was also categorized into five following sub-categories.

1. **Satisfaction:** Comments included under this category were related to patients' and physicians' satisfaction with PA services provided by the pharmacist.

Example: *Convenient for all patients, reduce wait time for patients by decrease faxing. Everyone is much happier.*

(Participant 083).

2. **Taking advantage:** Comments included under this category were related to pharmacist's concerns regarding misuse of PA services by patients.

Example: *I just find, especially in my practice, patients to use the Level 1 prescribing as a way to delay having to go to the doctor. It's usually not that they can't go to the doctor; they are just choosing to not make the appointment until they are out of pills, in order to try and get an extra month refill.*

(Participant 20).

3. **Knowledge:** Comments included under this category were related to whether or not patients and physicians are knowledgeable about the PA services the pharmacist provides.

Example: *I find patients don't understand what you are allowed to prescribe for minor ailments (i.e. always want you to diagnose and prescribe antibiotics because can't get in to see physician in timely fashion).*

(Participant 030).

I have found that the doctors in our area have specifically told their receptionists that pharmacists can prescribe anything. This has caused a lot of upset patients when we cannot prescribe narcotics, benzos, OTC's (that have not prescribed b/f), antibiotics (because they are not feeling well), etc.

(Participant 389).

4. **Mis self-diagnosis:** Comments included under this category were related to pharmacist's concern about patients' wrongful self-diagnosis of minor ailment conditions.

Example: *Mis-diagnosis or misleading/ inaccurate answer by patients leading to improper product being prescribed (or prescribing when should have referred).*

(Participant 427).

5. **Follow-up:** Comments included under this category were related to follow-up issues with patients that pharmacists as a prescriber face.

Example: *The only concern is follow-up. I have tried to call a couple of patients for a follow up after I prescribed something. I either don't get a call back when I leave a message or they never answer. In those situations, you really don't know whether it worked or not or even it really got worse. You counsel people what to expect plus that the follow up will happen but sometimes it doesn't happen at all.*

(Participant 651).

The Fourth and final theme (physicians) was categorized into only one following sub-category.

1. **Support:** Comments included under this category were related to whether or not pharmacists get support for PA services they provide.

Example: *Male dr. who is 85 years old does not understand our profession and what we can do. He has told me that pharmacists know nothing about curing/treating*

disease/ailments. This has not stopped us from using prescriptive authority. The other dr. has been great and has a better understanding.

(Participant 754).

Due to the large number of comments collected, only a few suitable comments were selected to support quantitative findings and answer research questions accurately.

5. DISCUSSION

5.1 Research Question 1

To what extent has expanded prescriptive authority been integrated into community practice?

The literature shows that in Canada and in other jurisdictions, the ability of pharmacists to “prescribe” in a community setting has increased considerably in recent years (Law, Ma, Judith, & Sketris, 2012). Their involvement is not limited to urban areas but rural areas as well (Phul et al, 2004; CPhA, Sept. 2008). As of 2015, pharmacists in Saskatchewan were eligible to prescribe for Level 1 and sixteen Minor Ailment conditions (MedSask, 2015).

As these new prescribing activities (Level 1 and MA Prescribing) are added to the pharmacist’s role, a vast majority of respondents (Pharmacists) indicate that they are highly confident (94%) to provide Level 1 prescribing to their patients. They provide Level 1 services to three out of every four patients (74.2%) that come to the pharmacy eligible for Level 1 services. Respondents have shown enough confidence in providing Level 1 services to the best of their ability not only in cities but also in small towns.

Working in a very small town Level 1 prescribing is very important as sometimes patients have hard time getting to the city. Weather can also affect them making their appointments. Being able to provide interim supply something a lot of my patients rely on.

(Participant 315).

Along with the high level of confidence some respondents also mentioned that they possess enough knowledge to provide Prescriptive Authority Services to the patients on a daily basis at the pharmacy they work.

My experience with PA over the last 6 months since graduation has been great. Once you have done it a couple of times it doesn’t take long at all and it becomes a normal pharmacist task-duty we do regularly at our pharmacy. It has also developed strong relationships with our patients. I feel that my training to do PA has given me the confidence- knowledge that I need to provide this service. PA is an integral start to expanding the role of the pharmacist.

(Participant 952).

Although they provide Level 1 prescribing services to almost 75 percent of the patients they see, some respondents indicated that there are some potential barriers that get in the way to provide Level 1 services to all eligible patients.

I feel more confident with renewing prescriptions and find that I can fairly, easily fit that into the workflow when needed. Other activities in level 1 prescribing are not used as often, so I am less comfortable with those, it would take more time to do.

(Participant 512).

In this study, pharmacists revealed that they provide prescribing services for MA conditions to their patients around half of the time (52.5%). However, they report a 75.5 percent level of confidence in their MA prescribing abilities. Respondents have also mentioned in their comments that they are looking forward to more minor ailments being added in the list so they can help more eligible patients.

Looking forward to increase ailments and increased prescribing level (s) i.e. injections, especially flu and hopefully travel vaccines as our patients are lacking accessibility to these services.

(Participant 845).

We should be authorized to extra prescription for drugs that have been used prior to 3 month period. And also for controlled drug's antibiotics

(Participant 925).

Respondents indicated that they only provide MA prescribing services to half of the patients they see, and some of them mentioned that there are some potential barriers that need to be addressed in order to prescribe to the best of their ability.

I feel restricted by the flow chart and guidelines and often have to turn patients away and refer to dr. when one answer doesn't line up but I am still confident in my abilities, it feels black and white with no room for wiggle.

(Participant 713).

Pharmacists are primary points of contact for the patient regarding MA prescribing services and prescribe for conditions self-diagnosed by the patient (MedSask, 2015). Sometimes they are unable to prescribe if they find the self-diagnosis is unreasonable. In this case, they refer the patient to a doctor (MedSask, 2015). This potentially hinders their ability to prescribe MA versus Level 1.

For minor ailment we rely on patient self-diagnosis. As the list of ailments grows, I am concerned they may jump to conclusions to miss red flags. The forms we fill out with the patient do help though! We must all be thorough in our assessment.

(Participant 634).

Although most of the respondents indicated they are confident in providing MA services, some expressed that they sometimes feel a lack of confidence or comfort with MA conditions and end up not doing it.

Often feel rushed to provide prescriptive authority services I don't do it often, and so I am uncomfortable with a lot of the minor ailments- do cold sores, allergic rhinitis more often so I am more comfortable with these, can get them done faster so tend to do them more.

(Participant 316).

I do not feel very comfortable and confident in minor ailment prescribing so try to avoid doing it.

(Participant 512).

Several respondents expressed that they do not find enough time to provide MA services to their patients as they work at a busy pharmacy.

I do not have time to provide minor ailment prescribing because we consistently work short staffed and are a busy store. I would feel more confident if I did it more often but there is no time in my day.

(Participant 57).

I don't do it at all because of the lack of time.

(Participant 105).

A study by Rosenthal et al. (2011) revealed that pharmacists in Alberta view themselves as a dispenser of medication more than a patient centered health care provider. But unlike Rosenthal et al., this study suggested that pharmacists are more involved in a patient centered care currently than just dispensing medication. Law et al. (2012) also suggested in a study that the scope of a pharmacist's prescribing services has been expanded from their role as a dispenser to an independent prescriber.

I am very glad that we are able to do prescriptive authority. I feel it is extremely important for Saskatchewan to keep pace with pharmacy trends across the country. I love MA prescribing. I feel prescriptive authority is a must in Saskatchewan and is tailored specifically for rural communities that do have gaps in physician contact.

(Participant 594).

Their responses suggest that if a patient is seeking treatment for a Level 1 condition, most of the time they get the necessary treatment from pharmacists. But when it comes to MA conditions, they only get treatment half of the time. When symptoms look severe or a pharmacist is not able to diagnose it or feels a lack of confidence, patients are referred to the physician. Respondents suggested that small refresher courses or seminars on MA prescribing could be a big asset in order to increase their confidence levels.

Would appreciate a "refresher" course via tele health or a live seminar on minor ailment prescribing to increase confidence in prescribing this service to patients (e.g. review of

differential diagnosis for minor ailments to help decrease concerns over mis-diagnosing/liability issues).

(Participant 357).

Based on response received, it can be assumed that community pharmacists are confident in providing these new services to their patients, but as they have indicated, they feel more comfortable when they deal with a patient with a Level 1 condition than MA.

Even though I have taken the MA prescribing, I still feel somewhat hesitant to prescribe. I find unless the need is obvious, I am hesitant. I don't necessarily seek out MA opportunities. I am unsure why I feel this way. I assume it is lack of experience and I am certain I will feel more confident with practice- I just have to make myself do it.

(Participant 746).

A recent pilot study by Pharmacy Association of Nova Scotia (PANS) in October 2013 revealed that there was an increase in the level of confidence of pharmacists in assessing patients. It can be projected that the MA prescribing is a recent addition to their practice so they may not be familiar with their actual role as a prescriber for MA. Guirguis et al (2011) also mentioned that in a similar study that the pharmacists are still unclear about the actual definition of "Pharmacist Prescribing".

It can be said in the broader context of the health care system in Canada, there is no doubt that a patient's access to medication has improved considerably in the last few decades and non-urgent patient visits to the physician have decreased (Cooper et al., 2008). This is helping physicians to spend more time with patients suffering from chronic conditions or other serious health related problems (Cooper et al., 2008).

Pharmacists have also indicated that since Level 1 and MA prescribing services have been integrated into their practice liability has not been an issue that prevents them or affects their decision to provide these services to the patients. Only a few pharmacists indicated that liability is a concern, as prescriptions are based on self-diagnosis.

5.2 Research Question 2

How have the characteristics of the community practice setting affected participation by community pharmacists in services associated with expanded prescriptive authority?

Pharmacists' response for this research question revealed overall support for prescriptive authority along with the challenges they face in day to day practice.

Almost all respondents (90%) reported that the pharmacy they work at consistently provides Level 1 prescribing to patients but only half (52.9%) provide MA prescribing services. This suggests a high level of engagement in the services associated with prescriptive authority particularly Level 1 prescribing services.

However, the difference in consistency between Level 1 and MA could have been caused by a lack of space at some pharmacies, hindering the ability to provide proper patient counseling and diagnosis. Hatah et al. (2012) also mentioned that physicians were concerned about insufficient space at the pharmacy or unavailability of a private consulting room for pharmacists to provide screening, monitoring and prescribing to their patients.

Being next to a walk-in clinic I don't find many opportunities to do minor ailment prescribing. Being new to this location the pharmacy wasn't set up to easy do MA prescribing as it was at another pharmacy previously worked out.

(Participant 382).

The principle pharmacy I work at, there is no private area to conduct MA prescribing, as I am the only pharmacist working during shift (no technician either) this would take a lot of time I cannot afford.

(Participant 947).

Pharmacists have indicated an overall supportive environment from their managers to provide prescriptive authority services. They suggested that their managers are highly supportive and appreciate the services they provide as part of their expanded scope of practice (Level 1 and MA Prescribing). Lloyd et al. (2010) found less support for these activities from organization leaders in their study in the UK. Unlike Lloyd et al, this study indicated tremendous support for pharmacists from the managers.

This study revealed that the paperwork associated with Level 1 prescribing is not a big issue to deal with for the pharmacists and this generally doesn't prevent them to offer Level 1 prescribing services to their patients; However, half of the respondents also indicted that the paperwork associated with MA prescribing sometimes deter them from offering these services. This could be due to a difficulty accessing patient records, sharing their information and overall inadequate IT infrastructure.

Pharmacists are expected to do an abundance of paperwork to collect an \$ 18 minor ailment fee. Physicians do minimal paperwork to allow them to prescribe a drug for minor ailment. More should be done to decrease the paperwork burden on minor ailment prescribing.

(Participant 29).

The required documentation and follow-ups with minor ailment prescribing often deters me from prescribing

(Participant 755).

Researchers in various countries found that these same issues deter pharmacists from offering expanded prescribing services. Cooper et al. (2008) mentioned that several clinical practitioners in the UK find the same issues preventing pharmacists to provide Prescriptive Authority services, which is later supported by Lloyd et al. (2010). In Australia, Hoti et al (2011) also found that pharmacists required more IT resources to integrate new responsibilities smoothly.

This study also revealed two different views of respondents with respect to the priorities of other professional duties over Prescriptive Authority services. Slightly more than half of respondents indicated that the demands of other professional duties don't usually take priority over Level 1 prescribing. However, almost the same number of respondents indicated other professional duties act as a barrier to provide MA prescribing, since MA prescribing is a more recent addition to the scope of practice. Respondents previously mentioned that on an average it takes around 16 minutes to provide MA prescribing service to a patient. It can be anticipated that addition of some new responsibilities could cause additional workload and time pressure.

Some of the respondents indicated that Prescriptive Authority as a time consuming process particularly when they are short of staff at the pharmacy. They highlighted that MA prescribing is more time consuming than Level 1 which makes their job more difficult.

Wish we have more time to access lab values but the strain put on us by extra increased prescription volume and less staffing makes prescribing more difficult, makes it harder to make informed decisions when you are always rushed.

(Participant 80).

Level 1 prescribing has easily become a routine service in our pharmacy, simple to provide, document and bill. Minor ailment prescribing is much more time consuming and therefor much more difficult to integrate into the work flow busy-ness plus the number of pharmacists available when opportunity arise strongly influence if/when these services are provided.

(Participant 104).

MA prescribing is even more time consuming, honestly, I don't even offer this option to most patients. Realistically, we can only offer it to patients if we are full staffed as it takes at least 15 min. to interview patient.

(Participant 204).

MA prescribing is time consuming and there is little pharmacist overlap at my store, so I find myself recommending OTC products when sometimes the person might be eligible for MA prescribing.

(Participant 558).

MA prescribing is assuredly more difficult to achieve when combined with limited staffing and a busy dispensary. To provide these services we often must attempt to do so under considerable time constrain thus generally are only provided when patient initiated. Offering of MAP usually occurs during slow periods. Scheduling appointments when possible is desirable for time consuming consultations such as acne but not always achievable.

(Participant 807).

Cooper et al. (2008) and George et al. (2007) also identified these issues and pharmacists dual role as a barrier towards their expanding prescribing authority in Australia which was later supported by Hoti et al. (2011).

With respect to the above research question, respondents have shown strong support to the expanding scope of practice and their involvement in it. In terms of consistently providing services, managerial support, paperwork and the demands of other professional duties respondents indicated overall no issues regarding Level 1 prescribing. In the case of MA prescribing the biggest concern that respondents mentioned in their comments is time and staffing. There are some issues related to paperwork and the demand of other professional duties has also been indicated by the respondents. The reasons are because since MA prescribing has been implemented into the pharmacy practice; the number of MA conditions kept increasing. Earlier pharmacists were prescribing for seven MA conditions which have now increased to more than fifteen (PAS, June 2014).

At this point I am comfortable with the MA prescribing, but as they are introducing new conditions that pharmacists will be expected to prescribe for (GERD, fungal infections, hemorrhoids, migraines) I am uneasy. Our education did not go very in-depth about physical presentations of certain conditions or that we would have to assess it at pharmacy level. I feel that signs and symptoms of the new conditions may be many “red flags” that I will not feel totally comfortable prescribing a medication for. If I am expected to, I think our liability insurance should be increased.

(Participant 701).

Respondents have also acknowledged that less remuneration or re-imbursement for Prescriptive Authority services is an issue that sometime hinders them to provide these services to the patients. They have also mentioned that the pharmacists should get paid for these services not the employer.

Lack of fair re-imbursement, it takes me at least 5-10 min. to do all the proper paperwork. The \$6 sometime is just not work even though we always end up doing it because for the best interest of patients. But how could it be sustainable when our profit keeps going down due to new reforms in pharmacy.

(Participant 290).

Diaper dermatitis- minor ailments- if you go through the whole prescriptive process, determine they only need clotrimaderm cream, then you are unable to bill for the minor ailment fee. The program would force you to choose ketoderm in order to be billable which not a product that I would choose first is. So their category largely remains as just OTC counselling.

(Participant 441).

I never thought it would be subject of a quota of how many I do plus how many \$ we can generate- performance evaluation should not only on this, Also since some prescriptions coming to us as to only log at that time not be filled if they have a sig. ever or other problem which might be filled for through prescriptive authority it cannot until they are filled. Leads some people to log incorrect prescriptions with note to them at time of filling but could lead to error as well. (Poor practice driven by \$).

(Participant 587).

Concerned about the companies that are putting goals and numbers of MA and PA that one provided by each individual pharmacist, I know of a few companies that are pushing these services and putting pressure on individual pharmacists. This will affect their performance reviews and bonuses. I personally would have preferred the drug plan to reimburse the individual pharmacist for providing these services not the location of employment. Not because I want more money but because I believe it would reduce the pressure from the organization. The pharmacy would still get the dispensing fee, but the individual pharmacist would get the prescribing fee. I believe it would provide more incentives for the pharmacists to provide these services and would help to reduce the pressure from corporate offices.

(Participant 715).

Pharmacists are indeed educated, confident, and skilled enough to deal with these dramatic changes in their traditional role and also the confidence increases as more you involve in the activity so these issues can be resolved as pharmacist proceed toward expertise in MA prescribing as they are now in Level 1.

The above research question has aimed to address the following predictions being made in the beginning of this research.

Ho1: There is no relationship between various practice characteristics and the participation in Level One Prescribing in SK

Ho2: There is no relationship between various practice characteristics and the participation in Minor Ailment Prescribing in SK

Both quantitative and qualitative results of this study revealed support for the first hypothesis. There were no relationships found between various practice characteristics and the participation in Level 1 prescribing. As indicated by the respondents, paperwork generally does not affect their participation in Level 1 prescribing services. Both the results also revealed that too much paperwork sometime affects pharmacist's participation in Minor Ailment prescribing related services such as: accessing patient records and sharing their information, suggests that there is a relationship between various practice characteristics and the participation in Minor Ailment prescribing, therefore partially supporting the second hypothesis.

5.3 Research Question 3

To what extent has expanded prescriptive authority affected the primary professional relationships of community pharmacists?

5.3.1 Research Question 3a

How have relations with patients been affected by prescriptive authority?

A vast majority of respondents supported the notion that the patients are overall satisfied with the prescribing services they provide (based on their day to day interaction with the patients). However, the number of respondents indicated patients' satisfaction for Level 1 prescribing is slightly higher than the MA prescribing. Patient satisfaction with pharmacists prescribing indicates the relationship between pharmacists and patient getting better as they are interacting more often with each other than earlier.

Patients overall are appreciate it because sometimes they cannot get an appointment in time to see their physician.

(Participant 202).

In general well received plus highly appreciated by patients.

(Participant 259).

Stewart et al. (2009) mentioned that since the pharmacist's scope of practice has been expanded, patients are getting quick access to medication, waiting time to see a doctor has also reduced, able to have a detailed look of the medication and can have a discussion with the pharmacists about their medication. These could be the potential reasons of patients' satisfaction with pharmacist prescribing.

PA services an important service to patients. It is convenient and time-saving for them, compared to seeing a doctor. It decreases the number of people needing to go to a walk-in clinic for non-emergency reasons; it saves the health system money. It is rewarding to provide PA. The downfall is the small public demand, and the patients don't pre-book the appointment with pharmacists.

(Participant 021).

Convenient for all patients, reduce wait time for patients by decrease faxing. Everyone is much happier.

(Participant 083).

Particularly with minor ailments, patients are so impressed when they get follow-ups calls asking how therapy went or if they are going better.

(Participant 435).

They are very happy that they don't have to wait to see a doctor.

(Participant OL).

More than half of respondents supported the position that patients seem to have a greater appreciation for a pharmacist's ability to prescribe (Level 1 and MA).

Patients/customers really appreciate it.

(Participant 247).

Patients are very complementary.

(Participant 250).

Safety, quality and continuity of care within health care has improved a lot within a short period of time since pharmacists have been granted some prescribing responsibilities (Lloyd et al. 2010). According to a study in Australia by Hoti et al. (2011) patients indicated tremendous support for pharmacist's new role as a prescriber and their drug knowledge as well which is quite similar to the findings of this study where patients were satisfied and appreciated Prescriptive Authority services (Level 1 and MA) by pharmacists.

Patients are very pleased with the services provided by the pharmacists.

(Participant 707).

Patient's improved access to medication could be one of the potential reasons of their satisfaction and appreciation for pharmacists Prescriptive Authority. Bassell et al. (2005) and Hoti et al. (2011) both reported improved access to medication as a potential reason of patients support for expended pharmacists prescribing.

The only concern respondents indicated is “patient knowledge”. As prescriptive authority for pharmacists is a recent addition to their practice and MA is more recent, half of the respondents strongly disagreed or disagreed with the fact that patients are knowledgeable about what MA prescribing services allow pharmacists to do for them. Moreover, around one third disagreed or strongly disagreed for Level 1. However, around 40 percent respondents indicated support as well for Level 1.

I find patients don't understand what you are allowed to prescribe for minor ailments (i.e. always want you to diagnose and prescribe antibiotics because can't get in to see physician in timely fashion).

(Participant 030).

I have had patients leave the pharmacy angry because they are unaware that they still need to meet certain criteria before we can use our prescriptive authority. (I.e. patient upset because won't prescribe valacyclovir when cold sore has already erupted; patient angry because won't extend an expire prescription that has not been filled in 3 months and has only been filled 3 times in the last year). As a result, I wouldn't say my overall experience has been very positive.

(Participant 615).

Many people are not yet aware of which MA we can prescribe for. They often don't realize we can do any of them or they want us to prescribe things we are not authorized for ex. Antibiotics.

(Participant 937).

Participants generally believed that patients are getting benefits of pharmacist prescribing by getting easy and rapid access to medication and quick refills, but they are also concerned that some patients are using this service as a way to delay having to go to the doctor. Some respondents have indicated that patients are using PA as a way to delay having to go to the doctor or just expect us to extend refills without seeing a doctor.

I just find, especially in my practice, patients to use the Level 1 prescribing as a way to delay having to go to the doctor. It's usually not that they can't go to the doctor; they are just choosing to not make the appointment until they are out of pills, in order to try and get an extra month refill.

(Participant 20).

The general feel I have gotten from patients is that I can prescribe anything and that coming to me as a replacement to see their M.D. In some instances patients are lazy to seeing their M.D.- I am easier to get an “appointment” with.

(Participant 75).

I feel like people just expect us to extend refills for them. Many patients believe that they don't need to see the doctor ever again for repeats on medications. Can we put refills on

minor ailment prescribing? Uploading onto pip plus downloading script onto kroll system has some glitches.

(Participant 127).

Many patients feel this authority just means they do not have to go back to their doctors for refills but the doctor wishes them to go back. We have to have extra time explaining that when we seem it is appropriate we can extend them an extra month supply but they must still return to the doctor for appropriate checkup.

(Participant 169).

It can be anticipated that the overall relationship between patients and pharmacists is healthy and getting healthier day by day as patients are getting benefits of what pharmacists are doing for them as prescribers. However, a big part of the patient population is still unable to take benefit of pharmacist prescribing, particularly MA, due to the lack of awareness and lack of knowledge about pharmacists' new role. Minor Ailment prescribing services by pharmacist still needs to be promoted, by mediums such as: television, newspaper and advertising. A recent pilot study by PANS in Nova Scotia (PANS, October 2013) also revealed that MA prescribing needs more promotion in order to give benefits of this service to every single patient suffering from a MA condition.

The above research question has aimed to address the following predictions being made in the beginning of this research.

Ho3: There is no relationship between participation in Level One Prescribing and the quality of the pharmacist's relationship with patients in SK

Ho4: There is no relationship between participation in Minor Ailment Prescribing and the quality of the pharmacist's relationship with patients in SK

Both quantitative and qualitative results of this study generally supports hypothesis three. It was found that patient' knowledge, support and appreciation for the services that pharmacists provide as a Level 1 prescriber does not affects pharmacists' participation in Level 1 prescribing and the quality of services they provide. Therefore on a broader intellectual curiosity there was no relationship found between pharmacist's participation in Level 1 prescribing and their relationship with patients.

Both the results of this study also supports hypothesis four. It was found that patient' knowledge, support and appreciation for the services that pharmacists provide as a Minor Ailment prescriber does not affect pharmacists' participation in Minor Ailment prescribing and the quality of services they provide. Therefore on a broader intellectual curiosity there was no

relationship found between pharmacist's participation in Minor Ailment prescribing and their relationship with patients.

5.3.2 Research Question 3b

How have relations with physicians been affected by prescriptive authority?

This research question revealed two different views of respondents about the relationship between pharmacists and physicians. Overall healthy relations and good interaction with physicians has been reported when pharmacists prescribe for Level 1.

I have had nothing but support from doctors and love this new world of pharmacy.

(Participant 043).

However, at the same time, lack of interaction has also been reported when they prescribe for MA conditions which could be a potential barrier between the healthy relationships of physicians and pharmacists (as MA prescriber).

For the most part doctors are ok with pharmacist prescribing. However, I have had doctors who are unreasonably upset when I have prescribed for certain patients. For ex. Patient A is out of his heart pills, dr. does not take fax refills and patient cannot see dr. right away. Dr. Calls about 2 weeks later upset that we prescribed heart pills for a patient (patient has been on same dose for at least 6 months). I always tell patients to follow up with their doctors; even this patient does still have not changed to this day. I think barriers like this are still a problem for prescribing today.

(Participant 651).

Physician support for level 1 prescribing is mixed. The majority are supportive but some individuals place restrictions. Ex. 5 day supply only, only on weekends.

(Participant 576).

Pharmacists have been granted some form of prescribing authority since 2007 in some parts of Canada and since then they are continuously involved in some form of prescribing activities for the patients initially diagnosed by a physician. That helps in reducing physician's workload and allows them to spend more time with patients having chronic conditions and other severe diseases. This could be the reason that a fairly large number of respondents reported that physicians are knowledgeable about what pharmacists are doing as a Level 1 prescriber and appear to be satisfied with the services that a pharmacist provides to their patients. Lloyd et al. (2007) and Cooper et al. (2008) also reported that physicians in the UK had a very supportive and optimistic view about pharmacist prescribing where primary diagnosis made by them which is later mentioned in a study by Hoti et al. (2011) as well.

Conversely, respondents revealed physicians' lack of knowledge about what they do as a MA prescriber and less satisfaction in comparison to Level 1.

I have found that the doctors in our area have specifically told their receptionists that pharmacists can prescribe anything. This has caused a lot of upset patients when we cannot prescribe narcotics, benzos, OTC's (that have not prescribed b/f), antibiotics (because they are not feeling well), etc.

(Participant 389).

I feel that physician offices could decrease work load (if they want to) by having their staff knowledgeable and identify when a patient can utilize minor ailment prescribing.

(Participant 537).

Physician's offices tend to be uninformed about prescriptive authority. Often patients will show up at the pharmacy claiming the physicians often told them that we pharmacists can just extend prescriptions. Obviously this is gross over simplification of PA. Even some time it is an acute medication the patient is requesting (i.e. antibiotic use for an infection).

(Participant 894).

As Level 1 prescribing became a part of their day to day life and physicians are more familiar with their role, physicians may find themselves more comfortable with the pharmacist as a Level 1 prescriber. However, MA is a more recent addition to the pharmacists' scope of practice and physicians only get into contact with pharmacists when they diagnose a patient referred by a pharmacist and that doesn't happen very frequently.

The findings also disclosed that to some extent physicians rely on pharmacists for Level 1 prescribing services but there was evidence supporting that they depend on pharmacists for MA prescribing as well. However, respondents indicated that they get less or no support from physicians for the prescribing services they provide.

Male dr. who is 85 years old does not understand our profession and what we can do. He has told me that pharmacists know nothing about curing/treating disease/ailments. This has not stopped us from using prescriptive authority. The other dr. has been great and has a better understanding.

(Participant 754).

I find that most of the time, physicians dislike our pharmacy prescribing for their patients as they view prescribing medications only to be in the relation of the physicians.

(Participant 980).

Disappointingly we have had some physicians restrict our ability to provide these services to our mutual patients. There has been some physicians' request that we do not provide these services for certain medications, or that we only provide interim supplies on weekends and limit the amount of medication we give.

(Participant OL).

These findings are not unexpected in terms of physicians support for pharmacist prescribing. There are some potential barriers such as: pharmacist's lack of confidence, inadequate clinical examination skills, and discomfort performing diagnosis which makes physicians or primary health care providers to rethink about giving entire patient assessment responsibility to the pharmacists.

I wouldn't want a patient to delay medical care because I have misdiagnosed their ailment.

(Participant 190).

If any MA condition doesn't fit the criteria exactly or I seem unsure of diagnosis or pushing the limit of when to prescribe, I usually send them to the doctor instead.

(Participant 761).

Stewart et al. (2009) and Tonna et al. (2007) indicated barriers that make GPs less supportive for pharmacist to prescribe independently. A study by Lloyd (2010) also indicated less GPs support for pharmacist prescribing. More recently in June 2014, a pharmacy newsletter by rxPASSPORT revealed that pharmacist's lack of confidence on doing MA assessment could be a reason which prevent them to become a MA expert.

The majority of respondents indicated that they are not sure whether the physicians they work with respect them for their professional contribution as a prescriptive authority prescriber or not. No significant differences have been observed though.

In the end the findings of this research demonstrate good and healthy relations between physicians and pharmacist, which is continuing to improve as the pharmacist's scope of practice is expanding. However, there are some issues regarding pharmacist's diagnostic skills and their lack of confidence in doing MA prescribing needs to be resolved in order to gain complete trust from the physicians.

The above research question has aimed to address the following predictions being made in the beginning of this research.

Ho5: There is no relationship between participation in Level One Prescribing and the quality of the pharmacist's relationship with physicians in SK

Ho6: There is no relationship between participation in Minor Ailment Prescribing and the quality of the pharmacist's relationship with physicians in SK

Both quantitative and qualitative results of this study generally supports hypothesis five. It was found that physician' knowledge, support and satisfaction for the services that pharmacists provide as a Level 1 prescriber does not have a significant effect on pharmacists' participation in

Level 1 prescribing and the quality of services they provide. Therefore on a broader intellectual curiosity there was no relationship found between pharmacist's participation in Level 1 prescribing and their relationship with physicians.

Both the results of this study generally supports hypothesis six. It was found that physician' support and appreciation for the services that pharmacists provide as a Minor Ailment prescriber does not have a significant effect on pharmacists' participation in Minor Ailment prescribing and the quality of services they provide. Therefore on a broader intellectual curiosity there was no relationship found between pharmacist's participation in Minor Ailment prescribing and their relationship with physicians.

5.4 Study Limitations

An important limitation of this study was the targeted population. Community pharmacists were asked to share their views about what patients and physicians might think about the issues examined in the questionnaire. Therefore, results were concluded based on the pharmacists' interpretation of patients' and physicians' views. However, this does not have a significant impact on the interpretation of data and transparency of overall results. The aim of this study was to assess pharmacist's behavior and perspective regarding challenges they may face as a function of their expanding scope of practice.

The next important limitation of this research was the data collection method. A cross-sectional study design was used in order to collect data. The cross-sectional study allows collecting data at one point in time. Therefore, it restricts the ability to show causality. However, this study design allows confirmation of relationships through correlation to acquire an understanding of questionnaire issues.

Another limitation of this study was the generalization of the findings. Since this research was carried out in the province of Saskatchewan, the findings were based on the experiences of community pharmacists working exclusively in Saskatchewan. Therefore, the results cannot be generalized to the entirety of Canada. This research topic is affecting community pharmacists across all the provinces of Canada. Hence, it has created a generalization of respondents' point of view which could be an asset while performing comparative analysis of pharmacists' experiences across Canada.

5.5 Conclusions

The community pharmacists who participated in this study generally expressed support for Prescriptive Authority (both Level 1 and Minor Ailment). Conversely, Level 1 services that supported traditional dispensing services were generally more consistently provided, supported, and perceived as being valued by others compared to Minor Ailment Prescribing.

The study suggests that pharmacists are highly confident while serving their patients as a prescriber. Moreover, pharmacists indicated that their prescribing services are not only limited for patients living in cities but they also provide these services to the patients living in the rural areas and small towns in Saskatchewan. Even though pharmacists are highly confident, they still fail to provide MA prescribing to half of the eligible patients due to lack of time, limited space and improper diagnosis. These issues need to be resolved in order to provide patients full access to medication and pharmacists to use their full scope of practice.

In terms of time and space it is essential that pharmacy managers or owners ensure they have a sufficient number of pharmacists, technicians and other working staff at the pharmacy to smoothly provide MA prescribing services to their patients. Also managers or owners need to make sure that their pharmacy has a small private area for patients so that they can discuss their self-diagnosed MA condition with the pharmacist and can get the necessary treatment. Pharmacists will also get more opportunities to interact with patients on a daily bases which will boost their confidence and increase their diagnostic skills.

In order to improve pharmacist's diagnostic skills and give them more confidence some refresher courses or live seminars on MA prescribing could be implemented. It may also be necessary to provide pharmacists some additional incentives in order to increase their interest and involvement in services related to MA prescribing. Or at least pharmacists may get reimbursed for the prescribing services they provide instead of their location of employment.

The study supports the fact that pharmacists think patients are happy and satisfied with many aspects of pharmacist's new role and seem to have a greater appreciation for the services they provide, based on pharmacists opinions. PA is convenient and time saving for the patients and decreases their unnecessary visits to the doctor. Nevertheless, the findings suggest that a big part of the population is still not completely aware about pharmacist's new role as MA prescriber. This study also suggests that patients need more awareness towards the pharmacist's abilities and their expanded role as a prescriber.

The study revealed generally healthy relations and good interaction between pharmacists and physicians as respondents have indicated in their comments that physician's workload has been reduced and they are able to spend time with the patients having severe or chronic disease. However, there are some barriers, such as lack of interaction and physician's knowledge that were identified when pharmacists prescribe for MA conditions. Because of these barriers pharmacist prescribing ends up getting less support by a physician. These issues can be resolved by giving both an opportunity to interact more frequently so that physicians can get to know more about pharmacist's knowledge and capabilities to assess and prescribe as a MA prescriber. Moreover, it will help to build more trust in their relationships and most importantly it will give time and money saving care to the patients of this province.

Findings of this research suggest that Level 1 and MA prescribing services resulted in positive outcomes for patients, pharmacists as well as physicians. Therefore these services must be appreciated, supported and further expanded in this province so that patients can get the full benefit of healthcare resources, pharmacists can use their full scope of practice and physicians can get more time to spend with patients having chronic diseases.

6. REFERENCES

- Adamcik, B.A., Ransford, H.E., Oppenheimer, P.R., Brown, J.F., Eagan, P.A. & Weissman, F.G. (1986). New clinical roles for pharmacists: a study of role expansion. *Social Science & Medicine*. 23, 1187-200.
- Alwin. D. & Krosnick. J. (1991). The reliability of survey attitude measurement: The influence of questions and respondent attributes. *Sociological Methods Research*. 20, 139.
- Bessell, T., Nissen, L. Marriott, J., & Emmerton L. (2005). Improving Australians' access to prescription medicines: Development of pharmacy practice models. Final Report, August 2005. *Pharmacy Guild of Australia*.
- Bradshaw, S.J. and Doucette, W.R. (1998). Community Pharmacists as Patient Advocates: Physician Attitudes. *Journal of the American Pharmacists Association*. 38, 5, 598-602.
- Canadian Institute of Health Information (CIHI). Pharmacists in Canada, 2011—National and Jurisdictional Highlights. Retrieved from:
https://www.cihi.ca/en/pharm_2011_highlights_prof_en.pdf (accessed Sept. 25, 2015).
- Canadian Pharmacists Association (Sep. 2008). Management Committee, *Moving Forward: Pharmacy Human Resources for the Future*. Innovative Pharmacy Practices Volume I: Analysis and Overview, Ottawa (ON).
Retrieved from: <http://blueprintforpharmacy.ca/docs/default-document-library/2011/04/19/Moving%20Forward%20Final%20Report.pdf?Status=Master> (accessed Dec. 6, 2014).
- Canadian Pharmacists Association (Oct. 2011). Position Statement on Pharmacist Prescribing. Retrieved from: <http://www.pharmacists.ca/cpha-ca/assets/File/cpha-on-the-issues/PPPharmacistPrescribing.pdf> (accessed Nov. 10, 2013).
- Canadian Pharmacists Association (June 2015). Summary of pharmacist's expanded scope of practice across Canada. Retrieved from: http://www.pharmacists.ca/cpha-ca/assets/File/news-events/ExpandedScopeChart_June2015_EN.pdf (accessed Aug. 7, 2015).
- C-Health News. Medications and your Health. *The Role of Pharmacist*. (Sept. 30, 2014). Retrieved from:
http://chealth.canoe.ca/channel_section_details.asp?text_id=5837&channel_id=1039&relation_id=98904 (accessed Oct. 18, 2014).

- Carey, S. The Evolution of Pharmacy Practice in Canada: The Future is Here. *Pharma Science*. February/March 2010.
- Retrieved from: http://pharmbase.ca/wp-content/uploads/group-documents/30/1318745861-pharmasciencebulletin_pre-read_final.pdf (accessed updated version May 13, 2015)
- Cohen, J., (1988). Statistical power analysis for the behavioral sciences. *Hillsdale, NJ: Lawrence Erlbaum Associates*.2.
- Consultation Paper. (Oct, 2006). Enhanced Authority for the pharmacist to prescribe drugs in a Collaborative practice framework. *Saskatchewan College of Pharmacists*. Retrieved from: <https://scp.in1touch.org/uploaded/58/web/site/PharmacistPrescribingDiscussionPaper3.pdf> (accessed Feb. 14, 2015).
- Cooper, R., Anderson, C., Avery, T., Bissell, P., Guillaume, L., Hutchinson, A..... Ward, P. (2008). Stakeholders' view of UK nurse and pharmacist supplementary prescribing. *Journal of Health Service Research & Policy*. 13, 215-221.
- Cooper, R., Lymn, J., Anderson, C., Avery, A., Bissell, P., Guillaume, L.....Ware, P. (2008). Learning to prescribe - pharmacists' experiences of supplementary prescribing training in England. *BMC Medical Education*. 57, 1-8.
- Cooper, R.J., Anderson, C., Avery, T., Bissell, P., Guillaume, L., Hutchinson, A..... Ward, P. (2008). Nurse and pharmacists supplementary prescribing in the UK- A thematic review of the literature. *Health Policy*. 85, 277-292.
- Creswell, J. W., Plano Clark, V. L., Gutmann, M. & Hanson, W. (2003). Advanced mixed methods research designs. *Handbook on mixed methods in the behavioral and social sciences*. 209, 40. Thousand Oaks, CA, Sage.
- Creswell, J. W., Plano-Clark, V. L., Gutmann, M., & Hanson, W. E. (2002). Advanced mixed methods research designs. In A. Tashakkori, & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research*, 209-240.
- Dillman, D., (2000). Telephone, Internet & Mail Surveys 2nd edition. *New York: Wiley & Sons*.
- Doucette, W., Kreling, D., Schommer, J., Gaither, C., Mott, D., Pedersen, C. (2006). Evaluation of Community Pharmacy Service Mix: Evidence from the 2004 National Pharmacist Workforce Study. *Journal of the American Pharmacists Association*.46, 3, 348-355.

- Eli, Jennifer Ann. (2009) "An Exploratory Mixed Methods Study of Prospective Middle Grades Teachers' Mathematical Connections While Completing Investigative Tasks in Geometry". *University of Kentucky Doctoral Dissertations*, 781. Retrieved from: http://uknowledge.uky.edu/gradschool_diss/781 (accessed Sept. 25, 2015).
- Emmert, L., Marriott, J., Bessell, T., Nissen, L., & Dean, L. (2005). Pharmacists and Prescribing Rights: Review of International Development. 8th ed. *Journal of Pharmacy and Pharmaceutical Sciences*. 2, 217-225.
- George, J., McCaig, D.J., Bond, C.M., Cunningham, S.I.T., Diack, H.L., Watson, M.A. & Stewart, D.C. (2006). Supplementary prescribing: early experiences of pharmacists in Great Britain., *The Annals of Pharmacotherapy*. 40, 1843-50.
- Giberson, S., Yoder, S., & Lee, M.P. (2011). Improving Patient and Health System Outcomes through Advance Pharmacy Practice. A report to the U.S. Surgeon General. *Office of the Chief Pharmacist. U.S. Public Health Service*.
- Gibson, J., (2008). Prescriptive authority- Are Pharmacists "Write". Retrieved from: <http://brainblogger.com/2008/06/29/prescriptive-authority-are-pharmacists-write/> (accessed Oct. 8, 2013).
- Government of Saskatchewan, (2012). Pharmacist Prescribing Services Enhance Patient Experience (News release on Oct. 23, 2012). Retrieved from: <http://www.saskatchewan.ca/government/news-and-media/2012/october/23/pharmacist-prescribing-services-enhance-patient-experience> (accessed May 13, 2015).
- Guirguis, L., Cooney, D., Dolovich, L., Eberhart, G., Hughes, C., Makowsky, M.,.... Sadowski, C. (2011). Exploring pharmacists' understanding and adoption of prescribing in two Canadian jurisdictions: Design and rationale for a mixed-methods approach. *Canadian Pharmacists Journal*. 144, 5, 240-244.
- Gwinner, C., (2006). Infosurv White Paper: 5-Point vs 6-Point Likert Scales. Retrieved from: http://www.infosurv.com/wp-content/uploads/2011/01/Likert_Scale_Debate.pdf (accessed Aug. 06, 2015).
- Hammond, R.W., Schwartz, A. H., Campbell, M. J., Remington, T. L., Chuck, S., Blair, M....Webb, C.E. (2003). Collaborative drug therapy management by pharmacists. *Pharmacotherapy*. 23, 1210-25.

- Hatah, E., Braund, R., Duffull, S. & Tordoff, J. (2012). General practitioners' perceptions of pharmacists' new services in New Zealand. *International Journal of Clinical Pharmacy*. 34, 364-373.
- Hepler, C.D., & Strand, L.M. (1989). Opportunities and responsibilities in pharmaceutical care. *American Journal of Pharmacy Education*. 53. S7-15.
- Hill, D. and Ramaswamy-Krishnarajan, J. (2005). Pharmaceutical care in Canada: An exploratory study of 81 community pharmacies. *Canadian Pharmacists Journal*. 138, 46.
- Hobson, R.J. & Sewell, G.J. (2006). Supplementary prescribing by pharmacists in England. *American Journal of Health-System Pharmacy*. 63, 224-253.
- Holland, R.W. & Nimmo, C.M. (1999). Transitions, part 1: beyond pharmaceutical care. *American Journal of Health-System Pharmacy*. 56, 1758-64.
- Hoti, K., Hughes, J. & Sunderland, B. (2011). Anexpanded prescribing role for pharmacists – an Australian perspective. *Australian Medical Journal*. 4, 4, 236-242.
- Hoti, K. (2010). Pharmacist prescribing in Australia. Thesis (PhD). Curtin University.
- Hurd, C., Blackburn, J. L. Thompson, M.S., Wallace, S.M. (1984). Evaluation of a computer-assisted medication refill reminder system for improving patient compliance. *Canadian Pharmacists Journal*. 117, 473-7
- Is Prescribing the Next Step in the Evolution of Pharmacy?. Cover Story (May 2012). The American Society of Health-System Pharmacists (ASHP). Retrieved from: <http://www.ashpintersections.org/2012/05/is-prescribing-the-next-step-in-the-evolution-of-pharmacy/> (accessed Feb. 16, 2015)
- Ivankova, N. V., Creswell, J. W. and Stick, S. L. (2006). Using Mixed-Methods Sequential Explanatory Design: From Theory to Practice. *Sage Publications*, 18, 3-20.
- Ivankova, N.V. (2002). A Sample Mixed Methods Dissertation Proposal. 1-89. Retrieved from <http://www.sagepub.com/creswellstudy/Sample%20Student%20Proposals/Proposal-MM-Ivankova.pdf> (accessed Oct. 25, 2013).
- Johnson, B., & Turner, L. A. (2003). Data collection strategies in mixed methods research. In A. T. C. Teddlie (Ed.), *Handbook of mixed methods in social and behavioral research*, 297-319.

- Johns. R. (2010). Survey Question Bank: Method Fact Sheet 1 (March 2010). *Likert Items and Scales*. Retrieved from: <http://survey.net.ac.uk/sqb/datacollection/likertfactsheet.pdf> (accessed March 31, 2015).
- Kreling, D., Doucette, W., Mott, D., Gaither, C., Pedersen, C., Schommer, J. (2006). Community Pharmacists' Work Environments: Evidence from the 2004 National Pharmacist Workforce Study. *Journal of the American Pharmacists Association*. 46, 3, 331-339.
- Lai, E., Trac, L. and Lovett, A. (2013). Expanding the Pharmacist's Role in Public Health. *Universal Journal of Public Health*. 1, 3, 79-85.
- Latter, S. & Molly, C. (2003). Effectiveness of nurse prescribing: a review of the literature. Issues in clinical nursing. *Journal of Clinical Nursing*. 13, 26-32.
- Law, M.R., Ma, T., Fisher, J., & Sketris, I.S. (2012). Independent pharmacist prescribing in Canada. *Canadian Pharmacists Journal*. 1, 17-23.
- Lloyd, F. & Hughes, C. (2007). Pharmacists' and mentors' views on the introduction of pharmacist supplementary prescribing: a qualitative evaluation of views and context. *International Journal of Pharmacy Practice*. 15, 31-37.
- Lloyd, F., Pearson, C. & Hughes, C.(2010). 'It's showed me the skills that he has': pharmacists' and mentors' views on pharmacist supplementary prescribing. *International Journal of Pharmacy Practice*. 18, 29-36.
- Lynas, K. (2012). Saskatchewan pharmacists break new ground in Canada with first minor ailment assessment fee. *Canadian Pharmacists Journal*. 145, 2, 55.
- Losby, J. & Wetmore, A. CDC coffee break: Using Likert scale in evaluation survey work. February 14, 2012. Retrieved from: http://www.cdc.gov/dhds/pubs/docs/CB_February_14_2012.pdf (accessed March 31, 2015).
- Makowsky, M.J., Guirguis L.M., Hughes, C.A., Sacowski, C.A. & Yuksel, N. (2013). Factors influencing pharmacists' adoption of prescribing: qualitative application of the diffusion of innovations theory. Implementation Science. *BioMed Central*. 8, 109.
- Mansell, K., Bootsman, N., Kuntz, A. and Taylor, J. (2014). Evaluating pharmacist prescribing for minor ailments. *International Journal of Pharmacy Practice*. 1-7

- McBean, B.J. and Blackburn, J., L. (1982). An evaluation of four methods of pharmacist-conducted patient education. *Canadian Pharmacists Journal*. 115,167-72.
- McKinnon, A., & Jorgenon, D. (2009). Pharmacist and physician collaborative prescribing. *Canadian Family Physician*. 55, e86-e91.
- McLeod, S. A. (2007). What is Reliability?. Retrieve from:
<http://www.simplypsychology.org/reliability.html> (accessed October 29, 2015).
- MedSask (2015). Guidelines for Minor Ailment Prescribing, *University of Saskatchewan*.
Retrieve from: <http://www.medsask.usask.ca/professional/guidelines/index.php> (accessed May 13, 2015).
- Meyer, B., Hill, J. & Trujillo, G. (2008). Attaining pharmacist recognition in the United States. *American Journal of Health System Pharmacy* .65, 2152- 53.
- National Association of Pharmacy Regulatory Authorities (NAPRA), (2013). National Statistics.
Retrieved from:
http://napra.ca/pages/Practice_Resources/National_Statistics.aspx?id=2103 (accessed June, 2014).
- Nissen, L. (2011). Pharmacist prescribing: What are the next steps? *American Journal of Health-System Pharmacists*. 68, 2357- 61.
- PANS. (October 2013). Pharmacy Association of Nova Scotia. Evaluation of the Provision of Minor Ailment Services in the Pharmacy Setting Pilot Study. Retrieved from:
https://pans.ns.ca/wp-content/uploads/2013/11/2013-10-17-PANS-report_FINAL.pdf
(Accessed Dec. 9, 2014).
- Pearson, G., Yuksel, N., Card, D., Chin, T., Gray, M., Hawboldt, J...Thompson, A. (2002). An Information Paper on Pharmacist Prescribing within a Health Care Facility. *The Canadian Journal of Hospital Pharmacy*. 55, 1.
- Pearson, G.J. (2007). Evolution in the practice of pharmacy- not a revolution. *Canadian Medical Association Journal*. 176, 9, 1295-96.
- Perepelkin, J and Dobson, R. (2010). Influence of Ownership Type on Community Pharmacy Managers. *Research in Social and Administrative Pharmacy*. 6, 4, 280-292.
doi:10.1016/j.sapharm.2009.11.001

- Pharmacist's Association of Saskatchewan (PAS). (2014). *Pharmacist Prescribing for You and Your Family*. Retrieved from: [http://www.skpharmacists.ca/pas-visitors-\(public-resources\)](http://www.skpharmacists.ca/pas-visitors-(public-resources)) (accessed Dec.10, 2014).
- Pharmacist independent prescribing programme - Learning outcomes and indicative content. *General Pharmaceutical Council*. Retrieved from: <http://www.pharmacyregulation.org/sites/default/files/Pharmacist%20Independent%20Prescribing%20-%20Learning%20Outcomes%20and%20Indicative%20Content.pdf> (accessed Nov.10, 2013).
- Pharmacist Prescribing Task Force (2010). Prescribing by pharmacists: Information paper (2009). *Canadian Journal of Hospital Pharmacy*. 63, 3, 267-274.
- Pharmacist Prescribing: Improving Access to Care in Mental health. LETTER TO THE EDITOR (Feb. 2010) . *Journal of Canadian Academy of Child and Adolescent Psychiatry*. 19, 1.
- Pharmacy Newsletter (June 2014). The Minor Ailments Program: Addressing Uptake Barriers. rxPASSPORT. Retrieved from: http://www.rxbriefcase.com/info/email/studentenl_rxpp_june.html (Accessed Dec. 9, 2014).
- Phul, S., Bessell, T. and Cantrill, J.A. (2004). Alternative delivery methods for pharmacy services. *International Journal of Pharmacy Practice*. 12, 153-63.
- Prescribing by Pharmacists: Information paper (2009). Pharmacist prescribing task force, *Canadian Journal of Hospital Pharmacy*. 63, 3, 267-274. May-June 2010.
- Punch, K.F. (1998). Introduction to Social Research. *Sage*. London
- Raosoft. Sample Size Calculator. <http://www.raosoft.com/samplesize.html>. (accessed July 10, 2013).
- Reeves, D. (2007). The 2005 Garrod Lecture: The changing access of patients to antibiotics – for better or worse? *Journal of Antimicrobial Chemotherapy*. 59, 333–41
- Roberts, P., Priest, H. & Traynor, M. (2006). Reliability and Validity in Research. *Nursing Standard*. 20, 40, 41-45
- Rosenthal, M.M., Breault, R.R., Austin, Z. & Tsuyuki, R.T. (2011). Pharmacists' self-perception of their professional role: Insights into community pharmacy culture. *Journal of the American Pharmacists Association*. 51, 363-367.
- Sarantakos, S. (1998). *Social Research*. Hampshire: PALGRAVE.

- Schommer, J., Pedersen, C., Gaither, C., Doucette, W., Kreling, D., Mott, D. (2006). Pharmacists' Desired and Actual Times in Work Activities: Evidence of Gaps from the 2004 National Pharmacist Workforce Study. *Journal of the American Pharmacists Association*. 46, 3, 340-347.
- Smith, F. (2005). Conducting your pharmacy practice research project. *Pharmaceutical Press, London*.
- Statistics Canada, (2011). Population and dwelling counts, for Canada, provinces and territories, and population centers, 2011 and 2006 censuses. Retrieved from: <http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/hlt-fst/pd-pl/Table-Tableau.cfm?LANG=Eng&T=802&SR=1&S=3&O=D&RPP=9999&CMA=0&PR=47> (accessed May 14, 2015)
- Status of collaborative drug therapy management in the United States. (March 2004). *American Journal of Health System Pharmacy*. 61, 1609-10.
- Stewart, D., George, J., Bond, C.M., Diack, H.L., McCaig, D.J. & Cunningham, S. (2009). Views of pharmacist prescribers, doctors and patients on pharmacist prescribing implementation. *International Journal of Pharmacy Practice*. 17, 89-94.
- Stewart, D., George, J., Bond, C., Diack, L., Cleland, J., McCaig, D., Harkness, S. (2010). Developing and validating a tool for assessment of pharmacist prescribers' consultations. *Family Practice*. 27, 5, 520-526.
- Sukamolson, S. Fundamentals of quantitative research. (2007). Language Institute, *Chulalongkorn University*. Retrieved from: http://isites.harvard.edu/fs/docs/icb.topic1463827.files/2007_Sukamolson_Fundamentals%20of%20Quantitative%20Research.pdf (accessed April 6, 2013).
- Tonna, A.P., Stewart, D., West, B. & McCaig, D. (2007). Pharmacist prescribing in the UK - a literature review of current practice and research. *Journal of Clinical Pharmacy and Therapeutics*. 32, 545-556.
- Traynor, K. (2004.) Pharmacists outside U.S. inch toward independent prescribing. *American Journal of Health System Pharmacy*. 6, 1429.
- Weeks, G., R. Marriott, J. and George, J. (2010). Australian hospital pharmacists' experiences of a UK non-medical prescribing course. *Journal of Pharmacy Practice and Research*. 40, 187-93.

- Weiss, M.C. & Sutton, J. (2009). The changing nature of prescribing: pharmacists as prescribers and challenges to medical dominance. *Department of Pharmacy and Pharmacology. University of Bath. Sociology of Health and Illness*. 31, 406-421.
- West, D.S. (2011). Survey Research Methods in Pharmacy Practice. Pharmacotherapy Self-Assessment Program 6th ed., *Science and Practice of Pharmacotherapy II*. 67-77.
- Yuksel, N., Eberhart, G., and. Bungard, T.J. (2010). Prescribing by pharmacists in Alberta, *American Journal of Health-System Pharmacists*. 65, 22, 2126–2132.

APPENDIX A

Original Questionnaire

Experience with Prescriptive Authority (PA) Services among
Saskatchewan Community Pharmacists



The College of Pharmacy and Nutrition

2014

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Experience with Prescriptive Authority (PA) Services among Saskatchewan Community Pharmacists

The purpose of this study is to gather information on your experiences with prescriptive authority (Level 1 and Minor Ailment prescribing). For our study, Level 1 prescribing includes activities such as: emergency prescription refills, renew/extend prescriptions, changing drug dosage/formulation, and therapeutic substitution. Minor Ailments (MA) prescribing includes all activities associated with initiating a prescription for a MA condition (i.e., acne, cold sores, insect bites, allergic rhinitis, oral ulcers, oral thrush, and diaper rash)

Participating in Prescriptive Authority Services:

I am confident in my ability to provide **Level 1 prescribing** services to my patients.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Of all the opportunities I have to provide **Level 1 prescribing**, the percent of which I actually provide Level 1 prescribing services (please circle most appropriate percent).

0 10 20 30 40 50 60 70 80 90 100

I am confident in my ability to provide **Minor Ailment prescribing** services to my patients.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Of all the opportunities I have to provide **Minor Ailment prescribing**, the percent of which I actually provide Minor Ailment prescribing services (please circle most appropriate percent).

0 10 20 30 40 50 60 70 80 90 100

On average, in terms of minutes, how much time does it take you to provide **Minor Ailment prescribing** services to a patient for one of the seven listed conditions?

_____ Minutes

Please indicate your level of agreement with the following statements regarding your practice setting:

Level 1 Prescribing

My pharmacy consistently provides Level 1 prescribing services to our patients.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The pharmacy manager supports Level 1 prescribing in this pharmacy.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Paperwork associated with Level 1 prescribing often deters me from offering these services.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The demands of my other professional duties take priority over Level 1 prescribing.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Minor Ailment Prescribing

My pharmacy consistently provides Minor Ailment (MA) prescribing services to our patients.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The pharmacy manager supports MA prescribing in this pharmacy.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Paperwork associated with MA prescribing often deters me from offering these services

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The demands of my other professional duties take priority over MA prescribing.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please indicate your level of agreement with the following statements regarding your perception of patient and physician attitudes toward prescriptive authority services (Level 1 and Minor Ailment)

Patients and Level 1 Prescribing

My patients seem knowledgeable about what Level 1 prescribing allows me to do for them.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

My patients appear to be satisfied with the Level 1 services I provide.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

My patients seem to have a greater appreciation for my expertise because of Level 1 prescribing

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Patients and Minor Ailment Prescribing

My patients seem knowledgeable about what Minor Ailment (MA) prescribing allows me to do for them.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

My patients appear satisfied with the MA services I provide.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

My patients seem to have a greater appreciation for my expertise because of MA prescribing.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Physicians and Level 1 Prescribing

The physicians that I work with appear knowledgeable about what Level 1 prescribing allows me to do.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The physicians that I work with appear satisfied with the Level 1 services I provide.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The physicians that I work with seem reluctant to support Level 1 prescribing.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The physicians that I work with appear to rely on me to provide Level 1 prescribing services to their patients.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The physicians that I work with seem to have greater respect for my professional contribution because of level 1 prescribing.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Physicians and Minor Ailment Prescribing

The physicians that I work with appear knowledgeable about what Minor Ailment (MA) prescribing allows me to do.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The physicians that I work with appear satisfied with the MA services I provide.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The physicians that I work with seem reluctant to support MA prescribing.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The physicians that I work with appear to rely on me to provide MA services to their patients.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The physicians that I work with seem to have greater respect for my professional contribution because of MA prescribing.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following refer to your level of concern about professional liability associated with Level 1 and Minor Ailment prescribing:

Concerns about liability often affect my decision to offer some **Level 1** prescribing services.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please indicate any specific issues or concerns you have regarding **Level 1** prescribing and liability risk:

Concerns about liability often affect my decision to offer some **Minor Ailment** prescribing services.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Respond
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please indicate any specific issues or concerns you have regarding **Minor Ailment** prescribing and liability risk:

Additional Comments regarding your experience with Prescriptive Authority

Demographics

Gender: ☐ Female ☐ Male **Age (Years):** _____

Current Position (Check all that apply)

☐ Staff Pharmacist ☐ Manager ☐ Associate ☐ Owner
☐ Other: _____

First three letters of your pharmacy's postal code: _____

Pharmacy Type (please select the one that best describes your pharmacy)

- | | |
|--|--|
| <input type="checkbox"/> Independent (fewer than 4 pharmacies
under the same ownership) | <input type="checkbox"/> Banner |
| <input type="checkbox"/> Small Chain (4-10 pharmacies
under the same ownership) | <input type="checkbox"/> Grocery Store |
| <input type="checkbox"/> Large Chain (more than 10 pharmacies
under the same ownership) | <input type="checkbox"/> Department Store |
| | <input type="checkbox"/> Mass Merchandiser |
| | <input type="checkbox"/> Franchise |
| | <input type="checkbox"/> Other (please describe):
_____ |

The portion below will be separated from the above questionnaire before any responses are put into a database so that your responses are not identifiable by any information provided below.

As a follow-up to this survey we are interested in discussing in more detail the subject matter of this questionnaire with those who are interested. The follow-up would consist of a one-on-one telephone conversation with a member of the research team that would last approximately 30 minutes. If you are interested in participating in the second phase of this project, please provide your name, city/town, telephone number (including the area code) where you can be reached, and the best local time to contact you below.

Name: _____
City/town & province: _____
Telephone number: _____
Best time to contact you: _____

Once responses have been compiled and analyzed, would you like to receive a summary of the findings?

☐ ☐ Yes via e-mail
(please provide e-mail address) _____
☐ ☐ Yes via postal mail
(please provide postal address) _____

Thank you for participating in this study – your time and willingness to share your perspective and opinion are greatly appreciated!



APPENDIX B
Pre-notice Letter

Dear

In approximately one week, you will receive in the mail a request to complete a questionnaire for an important research project being conducted at the College of Pharmacy & Nutrition at the University of Saskatchewan. For this project, your workplace address was obtained from the Saskatchewan College of Pharmacists.

The questionnaire we are asking you to complete seeks **to better understand your experiences with prescriptive authority services**. Specifically, this province-wide study seeks to gain a better understanding of prescriptive authority services as they relate to your practice setting and your relationships with your patients and the physicians of your community.

Your participation is important. However, it is completely voluntary and you do not have to complete the questionnaire if you do not wish; you may also refuse to answer individual questions. You may withdraw from the study at any time. **Your right to withdraw your data from the study will apply until April 30, 2014.** After this, some form of research dissemination will have occurred and it will not be possible to withdraw your data.

Should you have any concerns about this research do not hesitate to contact the principal investigator (Roy Dobson) by e-mail (roy.dobson@usask.ca), facsimile (306-966-6377) or phone (306-966-6363).

Thank you for your time and consideration. It's only through people like you, who are willing to help in our research, that we are able to gain a greater appreciation for the rewards and challenges of the pharmacy practice environment.

Sincerely,

Dr. Roy Dobson, PhD
Associate Professor of Pharmacy
College of Pharmacy & Nutrition

APPENDIX C

First Mailing Cover Letter

Re: Community Pharmacists Experience with Prescriptive Authority Services

The purpose of this study is to increase our understanding of your experiences with the provision of prescriptive authority services in Saskatchewan. The accompanying questionnaire includes sections relating to: the extent to which you and your pharmacy provide these services; aspects of practice that are seen to support or challenge the delivery of these services; and how these services may affect your relationships with your patients and the physicians in your community. The questionnaire should take 10-15 minutes to complete. If you prefer you can complete the questionnaire on-line at: <https://www.surveymonkey.com/s/K9PHMLY>

Your participation is important. However, it is completely voluntary and you do not have to complete the questionnaire if you do not wish; you may also refuse to answer individual questions. You may withdraw from the study at any time. **Your right to withdraw your data from the study will apply until April 30, 2014.** After this, some form of research dissemination will have occurred and it will not be possible to withdraw your data.

The **code number on the questionnaire** is designed to give the investigators the ability to track questionnaires while keeping your identity strictly confidential. Once the data collection is complete, the list that links code numbers to names will be destroyed. Only the principal investigator (Roy Dobson) and the study co-investigators will have access to the data arising from this study. All information will be stored in secure, locked facilities in the office of the principle investigator (Roy Dobson) at the University of Saskatchewan. Results will be aggregated to ensure that the identities of individual respondents are safeguarded. Results will be reported in the student-researcher's thesis, refereed periodicals and at conferences and meetings associated with pharmacists and health care organizations.

Should you have any concerns about this research do not hesitate to contact the principal investigator (Roy Dobson) by e-mail (roy.dobson@usask.ca), facsimile (306-966-6377) or phone (306-966-6363). You completing and returning this survey constitutes consent for the researchers to use the data for the purposes of conducting the study as approved by the University of Saskatchewan Behavioural Research Ethics Board (BEH# 11-133). **Should you have any questions regarding your rights as a participant in this study you may call the Office of Research Services at the University of Saskatchewan (306-966-2084).** Out of town participants may call collect.

Sincerely,

Rahul Jain, B Pharm
Student-researcher and
MSc Pharmacy Graduate Student

Dr. Roy Dobson, BScPharm, MBA, PhD
Principal Investigator and
Associate Professor of Pharmacy Administration

APPENDIX D
First Reminder Letter

Re: Community Pharmacists Experience with Prescriptive Authority Services

You recently received a request to complete a questionnaire regarding your experience with prescriptive authority. If you have already completed and returned the questionnaire, thank you. If you have not yet completed the questionnaire and intend to do so, we would ask that you complete it as soon as possible and to return it in the pre-stamped envelope provided. If you prefer you can complete the questionnaire on-line: <https://www.surveymonkey.com/s/K9PHMLY>

As you know, the questionnaire we are asking you to complete seeks to increase our understanding of your experiences with the delivery of prescriptive authority services in Saskatchewan. The questionnaire should take 10-15 minutes to complete.

Your participation is important. However, it is completely voluntary and you do not have to complete the questionnaire if you do not wish; you may also refuse to answer individual questions. You may withdraw from the study at any time. **Your right to withdraw your data from the study will apply until April 30, 2014.** After this, some form of research dissemination will have occurred and it will not be possible to withdraw your data.

Only the principal investigator (Roy Dobson) and the study co-investigators will have access to the data arising from this study. All information will be stored in secure, locked facilities in the office of the principal investigator (Roy Dobson) at the University of Saskatchewan. Results will be aggregated to ensure that the identities of individual respondents are safeguarded. Results will be reported in the student-researcher's thesis, refereed periodicals and at conferences and meetings associated with pharmacists and health care organizations.

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Sincerely,

Rahul Jain, B Pharm
Student-researcher and
MSc Pharmacy Graduate Student

Dr. Roy Dobson, BScPharm, MBA, PhD
Principal Investigator and
Associate Professor of Pharmacy Administration

APPENDIX E

Second Mailing Cover Letter

Re: Community Pharmacists Experience with Prescriptive Authority Services

To date, we have not received a completed questionnaire from you, so we are sending you a second copy. If you have already completed and returned the questionnaire, thank you. If you have not yet completed the questionnaire and intend to do so, we would ask that you complete it as soon as possible and to return it in the pre-stamped envelope provided. If you prefer you can complete the questionnaire on-line: <https://www.surveymonkey.com/s/K9PHMLY>

As you know, the purpose of this study is to increase our understanding of your experiences with the delivery of prescriptive authority services in Saskatchewan. The questionnaire should take 10-15 minutes to complete. Your participation is important; however, it is completely voluntary and you do not have to complete the questionnaire if you do not wish; you may also refuse to answer individual questions. You may withdraw from the study at any time. **Your right to withdraw your data from the study will apply until April 30, 2014.** After this, some form of research dissemination will have occurred and it will not be possible to withdraw your data.

The **code number on the questionnaire** is designed to give the investigators the ability to track questionnaires while keeping your identity strictly confidential. Once the data collection is complete, the list that links code numbers to names will be destroyed. Only the principal investigator (Roy Dobson) and the study co-investigators will have access to the data arising from this study. All information will be stored in secure, locked facilities in the office of the principal investigator at the University of Saskatchewan. Results will be aggregated to ensure that the identities of individual respondents are safeguarded. Results will be reported in the student-researcher's thesis, refereed periodicals and at conferences and meetings associated with pharmacists and health care organizations.

Should you have any concerns about this research do not hesitate to contact the principal investigator (Roy Dobson) by e-mail (roy.dobson@usask.ca), facsimile (306-966-6377) or phone (306-966-6363). You completing and returning this survey constitutes consent for the researchers to use the data for the purposes of conducting the study as approved by the University of Saskatchewan Behavioural Research Ethics Board (BEH# 11-133). **Should you have any questions regarding your rights as a participant in this study you may call the Office of Research Services at the University of Saskatchewan (306-966-2084).** Out of town participants may call collect.

Sincerely,

Rahul Jain, B Pharm
Student-researcher and
MSc Pharmacy Graduate Student

Dr. Roy Dobson, BScPharm, MBA, PhD
Principal Investigator and
Associate Professor of Pharmacy Administration

APPENDIX F

Second Reminder Letter

Re: Community Pharmacists Experience with Prescriptive Authority Services

The response to our study has been very encouraging with **approximately 40 percent** of community pharmacists returning a completed questionnaire. This letter is to advise you that the study will be closing soon (post marked April 9, 2014 or sooner), but **there is still time to add your voice to the study**. Simply complete the questionnaire and to return it in the pre-stamped envelope previously provided. If you prefer you can complete the questionnaire on-line:

<https://www.surveymonkey.com/s/K9PHMLY>

Your participation is important to us. However, it is completely voluntary and you do not have to complete the questionnaire if you do not wish; you may also refuse to answer individual questions. You may withdraw from the study at any time. **Your right to withdraw your data from the study will apply until April 30, 2014.** After this, some form of research dissemination will have occurred and it will not be possible to withdraw your data.

Only the principal investigator (Roy Dobson) and the study co-investigators will have access to the data arising from this study. All information will be stored in secure, locked facilities in the office of the principal investigator (Roy Dobson) at the University of Saskatchewan. Results will be aggregated to ensure that the identities of individual respondents are safeguarded. Results will be reported in the student-researcher's thesis, refereed periodicals and at conferences and meetings associated with pharmacists and health care organizations.

Should you have any concerns about this research do not hesitate to contact the principal investigator (Roy Dobson) by e-mail (roy.dobson@usask.ca), facsimile (306-966-6377) or phone (306-966-6363). Completing and returning this questionnaire constitutes consent for the researchers to use the data for the purposes of conducting the study as approved by the University of Saskatchewan Behavioural Research Ethics Board (BEH# 11-133). **Should you have any questions regarding your rights as a participant in this study you may call the Office of Research Services at the University of Saskatchewan (306-966-2084).** Out of town participants may call collect.

Sincerely,

Rahul Jain, B Pharm
Student-researcher and
MSc Pharmacy Graduate Student

Dr. Roy Dobson, BScPharm, MBA, PhD
Principal Investigator and
Associate Professor of Pharmacy Administration

APPENDIX G

Survey Ethics Approval



Behavioural Research Ethics Board (Beh-REB)

Certificate of Re-Approval

PRINCIPAL INVESTIGATOR
Roy Dobson

DEPARTMENT
Pharmacy

BEH#
11-133

INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT
University of Saskatchewan

SUB-INVESTIGATOR(S)
Jason Perepelkin

STUDENT RESEARCHER(S)
Rahul Jain

FUNDER(S)
SASKATCHEWAN COLLEGE OF PHARMACISTS
UNIVERSITY OF SASKATCHEWAN - COLLEGE OF
PHARMACY AND NUTRITION

TITLE
Experiences with Prescriptive Authority among Community Pharmacists in Saskatchewan

RE-APPROVED ON
21-May-2015

EXPIRY DATE
20-May-2016

Delegated Review: ☐ Full Board Meeting: ☐

CERTIFICATION

The University of Saskatchewan Behavioural Research Ethics Board has reviewed the above-named research project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this research project, and for ensuring that the authorized research is carried out according to the conditions outlined in the original protocol submitted for ethics review. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol or consent process or documents.

Any significant changes to your proposed method, or your consent and recruitment procedures should be reported to the Chair for Research Ethics Board consideration in advance of its implementation.

ONGOING REVIEW REQUIREMENTS

In order to receive annual renewal, a status report must be submitted to the REB Chair for Board consideration within one month prior to the current expiry date each year the study remains open, and upon study completion. Please refer to the following website for further instructions: http://www.usask.ca/research/ethics_review/

Vivian Ramsden, Chair
University of Saskatchewan
Behavioural Research Ethics Board

Please send all correspondence to:

Research Ethics Office
University of Saskatchewan
Box 5000 RPO University
1607 - 110 Gymnasium Place
Saskatoon, SK, Canada S7N 4J8